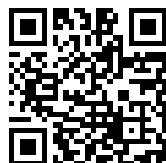

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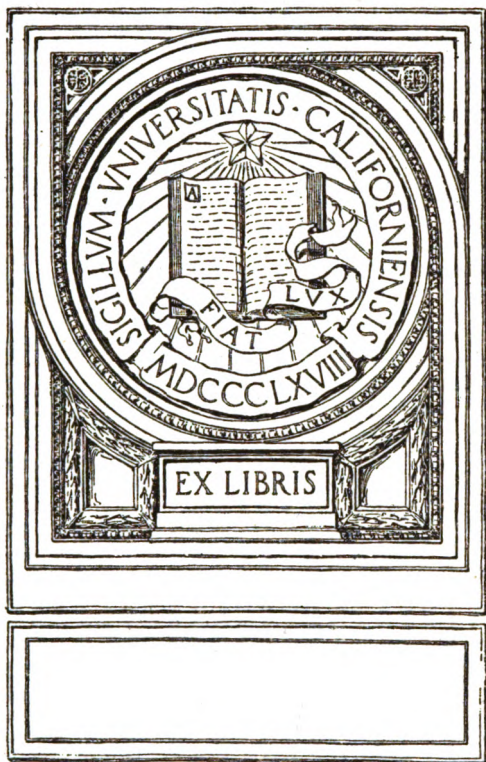
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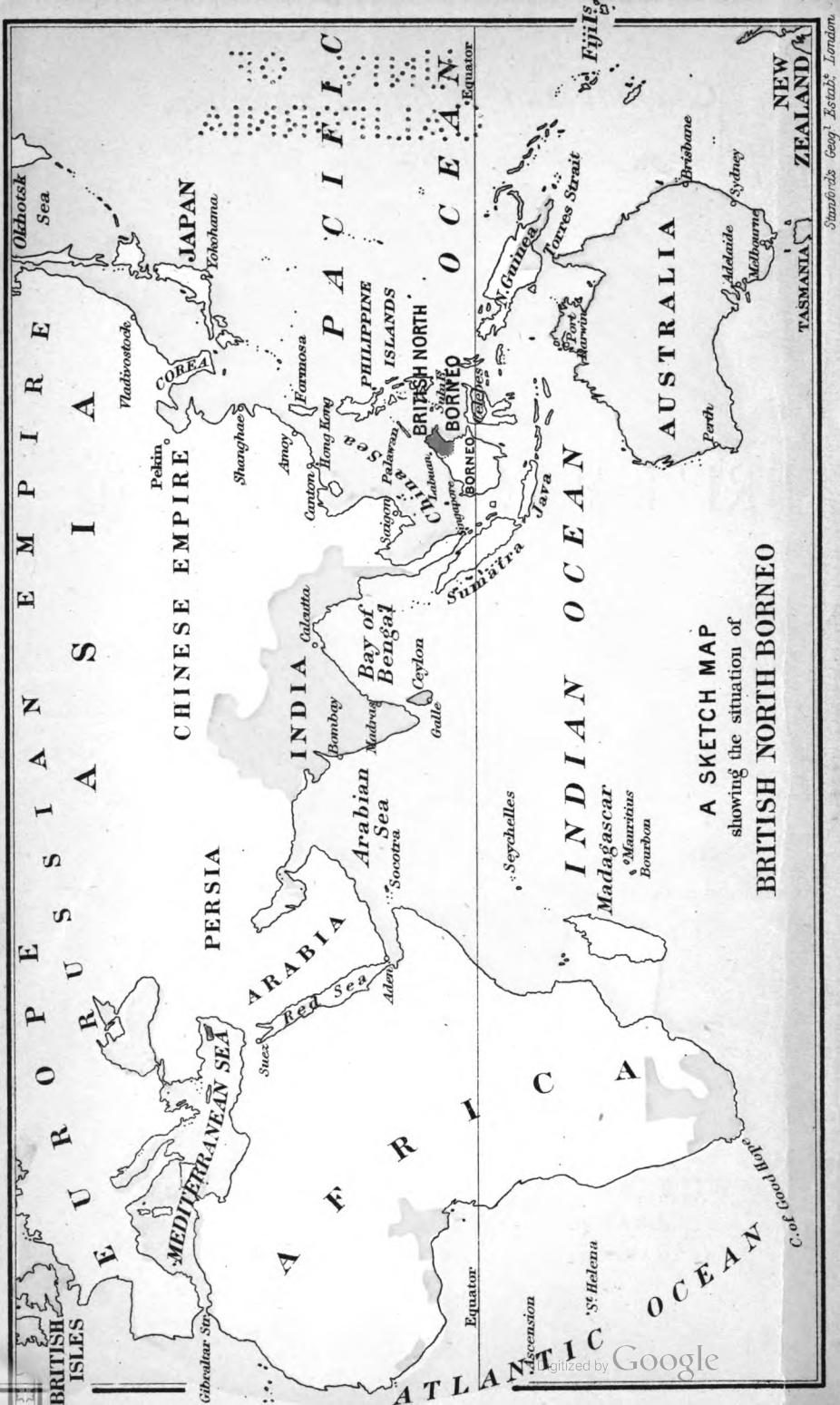


BRITISH NORTH BORNEO.

60



DAY OF CALIFORNIA



A SKETCH MAP
showing the situation of
BRITISH NORTH BORNEO

Standard Geog. Estate, London.

Colonial and Indian Exhibition,

1886.

HANDBOOK

OF

BRITISH NORTH BORNEO.

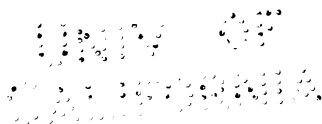
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*REPORTS RECEIVED FROM GOVERNOR TREACHER
AND OTHER OFFICERS IN THE BRITISH NORTH BORNEO
COMPANY'S SERVICE.*

WITH AN INTRODUCTION BY

SIR RUTHERFORD ALCOCK, K.C.B., D.C.L.,

EXECUTIVE COMMISSIONER FOR BRITISH NORTH BORNEO, AND CHAIRMAN OF THE
BRITISH NORTH BORNEO COMPANY.



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CONTENTS.

	PAGE
INTRODUCTION	5
I.—MODERN HISTORY.—American Trading Company—Provisional Association—British North Borneo Company—Objections of Foreign Powers—Opposition of Sarawak	16
II.—GEOGRAPHY.—Extent and Boundaries—Harbours and Roadsteads—Mountains and Rivers	21
III.—POPULATION.—Bajaus—Baligninis—Illanuns—Sooloos—Doompas—Boolloodoopies—Sabahans and Eraans—Tunbunwhas—Dusuns or Sundyaks—Native Customs	32
IV.—CLIMATE, METEOROLOGY, ETC.—Monsoons and Winds—Rainfall—Temperature—Peculiar Natural Phenomena—General Effects on Health—Prevalent Climatic Diseases—Diseases not due to Climate—Epidemics—Nationalities and Diseases—Sanitary Precautions—Sanitaria	41
V.—TRADE AND PRODUCTS.—Sea Produce: Bêche de mer—Keema—Agar—Agar—Mother of Pearl Shells—Pearls—Seed Pearls—Tortoiseshell—Turtle Eggs—Sharks Fins—Sponges—Oysters—Fishing by Keelongs, etc.—Forest Produce: Timber—Rattans—Birds' Nests—Guano—Gutta Percha—India Rubber—Beeswax—Gum Dammer—Camphor—Vegetable Tallow—Swamp Produce: Mangroves—Nipa and Nebong Palms	59
VI.—MINERALS. — Gold — Precious Stones—Coal—Quicksilver—Copper—Tin	83
VII.—AGRICULTURE.—Tobacco—Sugar—Pepper—Gambier—Hemp—Cocoa—Cocoanuts—Betel Nuts—Coffee—Kapok—India Rubber—Sago—Tapioca—Indigo—Fruits—Native Agriculture	86
VIII.—FORM OF GOVERNMENT, ETC.—Officials—Laws—Disposition of Natives—Revenue Sources—Sport, Natural History, etc.: Elephants—Rhinoceroses—Buffaloes—Deer—Pigs—Orangutans—Bears—Crocodiles—Snakes—European Life	102
CHARTER OF THE BRITISH NORTH BORNEO COMPANY	113
LAND REGULATIONS OF BRITISH NORTH BORNEO	129
NOTICES OF EXHIBITS	141
APPENDIX	153

INTRODUCTION.

OF the large progeny of British Colonies distributed all over the globe and more or less closely connected with the parent State, North Borneo is one of the latest additions to the number, forming another link in the chain that girdles the Empire.

From the earliest years of European navigation in the Eastern seas attention has been drawn to the importance of Borneo as a promising field for colonization, and in 1877, by dint of untiring exertion and the expenditure of both time and money, some influential British subjects obtained from the Sultans of Brunei and Sulu, the Rulers of the northern portion of this large island, important concessions of territory, which became vested in a Provisional Association to be merged later in the "British North Borneo Company." The energy and patriotic objects of the original lessees and the Association having obtained the approval of Her Majesty's Government, a Royal Charter was issued on the 1st November, 1881. This Charter, besides conveying an official recognition of the cession, confers extensive corporate powers upon the Company.*

The area acquired is some thirty-one thousand square miles in extent, and forms a kind of irregular triangle, more than two-thirds of which are bounded by the sea. The coast extends over 600 miles, and all islands within three leagues are included in the cession. This territory occupies an important position both strategic and commercial in the Eastern Archipelago, and is further gifted with many fine harbours and navigable rivers.

The object of the Company is the development of the vast natural resources of the country, by the introduction of capital and labour, and all the benefits of a civilised Government. The advantages accruing from these were so clearly shown in the

* See text of Charter, page 113.

case of the neighbouring Colonies of Hong Kong and the Straits Settlements, as to leave no doubt that, if carried out under proper conditions, the occupation of North Borneo under British rule could not fail to be attended with similar beneficial results. In addition, therefore, to the ripe experience of many members of the Directorate, the Company secured the able services of Mr. W. H. Treacher, formerly Acting Governor of Labuan, and Consul-General for Borneo, to whom they confided the Governorship of their newly-acquired domain.

The concession of a territory larger than Ceylon and nearly as large as Great Britain, with all territorial and sovereign rights, formally recognised and sanctioned by the Crown under a Royal Charter, gave rise to much comment both at home and abroad. The Spanish and Netherland Governments more especially were not slow to put forward claims of pre-emption or Suzerainty, and they opposed the grant of a Charter as an encroachment and violation of treaties with the native rulers. The Suzerainty claimed over the whole of the Eastern Archipelago from the Philippines to New Guinea—though none of the hundred isles, including Borneo, had ever been in useful occupation by either power, with the exception of Luzon, with its capital Manilla, by the Spaniards, and Java by the Dutch, during the four centuries which had elapsed since the first appearance of the Spaniards and Dutch in the Eastern seas—was repudiated. A barren monopoly of possession was contested by the British Government with Spain and Holland respectively, and was finally disallowed after two years of diplomatic correspondence, filling two Blue Books.

So novel an incident in modern times as the grant of a Royal Charter to a private company for the founding of a colony in the Eastern seas, gave an opportunity also to the Opposition in Parliament to raise a debate in both Houses. The result, however, in spite of all hostile comment, was to leave the new Company and its Charter invested with the sanction of Parliament by a large majority in the House of Commons, and without a division in the House of Lords. The grant of a Charter was vigorously defended by the Prime Minister himself in the former, and by the Secretary of State for Foreign Affairs in the latter.

Since that date it is not unworthy of note that one of the greatest and far-seeing of the statesmen of the present day—the

German Chancellor Bismarck—when carrying out his newly developed designs for the extension of colonial interests under the Empire, adopted exactly the same course as our Government, by granting a Charter to Companies willing to engage in such enterprises—in the Cameroons, in Eastern Africa, and in New Guinea. But, bolder than our own Government, or less careful perhaps to avoid responsibility, the German Chancellor proclaimed a Protectorate over each territory, conferring an additional prestige with the natives as well as security against aggression from without, a course which has not yet been adopted by the British Government, but may probably be followed in regard to North Borneo at no distant date, on the precedent of New Guinea and the Lower Niger.

It was easy to demonstrate that the objects of the Company were unexceptionable, and deserving of encouragement, as calculated to prove of national benefit. These objects were, moreover, in strict accordance with the Treaty entered into by the British Government with the Sultan of Borneo in 1847, wherein it is recited that the desire of the Queen was “to encourage commerce between Her Majesty’s subjects and the subjects of the independent rulers of the Eastern seas, and to put an end to piracies which have hitherto obstructed that commerce.”

A small additional effort in this direction was made by Her Majesty’s Government when this Treaty was negotiated, by the cession of Labuan, an island on the western coast of Borneo, supposed to be important as a naval station, with its harbour and reputed coal mines. It was accordingly made a British Crown Colony, with a Governor and other officers for effective administration. And although it has not realized the expectations formed, and has only been a tax on the Imperial Revenue until quite lately, the desire to possess such a station in this direction was no doubt fully justified.

The first bold conception of a plan (somewhat akin to that carried out by the late Sir James Brooke forty years before in Sarawak) to obtain by peaceable and legal means the possession of a territory of some 31,000 square miles, and develop its resources under equitable rule, was based on a sound estimate of the value and importance in the national interests of such an acquisition by British subjects. The earliest Dutch and British navigators all saw a splendid property in Borneo ; and so far back as the reign of

Queen Elizabeth companies of mercantile adventurers were largely and successfully engaged in preventing the total monopoly of the rich trade of the Eastern Archipelago by Portugal, Spain, and Holland. These powers had in succession claimed the territory in all the islands of the Archipelago and the Straits, including Malacca. And in 1602 the States-General of the Netherlands, in pursuance of a monopolising policy, consolidated their various companies and created the "Netherlands and East India Company," the first great joint-stock company whose shares were sold from hand to hand, which proved to be the turning-point in the commerce of Europe. It was the Spices of the Moluccas, especially the nutmegs and mace, the taste for which had rapidly spread in the middle ages throughout Europe, that wrought this revolution. A spice trade, more than any other, was the great prize for which the Dutch did battle, and in the end drove the Portuguese quite out of the field.

The English were slow, as is their habit, to follow the example of their commercial rivals. Nor did they take any serious action in this direction until moved by a purely accidental circumstance, the wreck of a Portuguese Indiaman on our coast, called the "*Mother of God*," which attracted public attention. This vessel was a ship of 1,600 tons, and on being towed into Dartmouth was found to contain a cargo of Eastern produce worth £150,000. It was only then that it seems to have been seriously contemplated to compete with the Dutch, and begin an Eastern trade of our own, instead of trusting for the supply of Eastern produce to an annual shipment from Venice. The merchants of London, Bristol, Plymouth, and other trading ports then combined to contest with the Dutch the monopoly they enjoyed. The whole commerce of the East at this date was fast drifting into their hands as it slipped from the nerveless grasp of Portugal under the baneful rule of Spain. Together these two countries, under one rule, still retained indeed all the most advantageous positions in the Eastern seas, and it was no light matter therefore to dispute with them and the Dutch so profitable a trade. Nothing daunted, however, a Company was formed, and on the last day of the 16th century Queen Elizabeth granted a charter to George, Earl of Cumberland, and 215 knights, aldermen, and merchants, that, "at their own cost and charges," they might set forth on one or more voyages to the East Indies, and be one

body politic and corporate, by the name of the "Governor and Company of Merchants of London trading with the East Indies." We cannot follow here the early operations of this great Company, destined to found an Eastern Empire, which placed an Imperial diadem on the brow of another Queen, our present gracious Sovereign. The voyage of Captain Lancaster and the establishment of British factories at Acheen and Bantam were the first fruits. The despatch of five ships laden with merchandise under his command in 1601 was a very risky venture, since they embarked in it £70,000, a large proportion of their whole capital, and sent it forth to encounter many perils both by sea and land. Enemies' ships, armed to prevent all such intruders, swarmed on all the coasts and over the whole route. It was crowned with success, however, commensurate with the boldness of the venture, and Lancaster and his ships returned in safety with freights of great value, after visiting Sumatra and Java, and establishing factories there. One can only feel regret that Elizabeth, who gave the Charter to the East India Company, did not live to see even this the earliest result of individual effort and courage which she had encouraged by her patronage. For it has been truly remarked that the mercantile enterprise of those remote times, which effected such great results, was for the most part the work of individuals, either acting singly, or associated in mercantile companies, at their "own cost and charges," as Queen Elizabeth, with characteristic caution, was careful to stipulate. In this, however, she was not singular, for neither the British Crown nor the other Governments of Europe had much to say in the matter, but left their subjects to fight their way as they best could, in the midst of adverse elements alike in the Spanish Main and the Eastern seas,—with their own resources and at their own cost and peril.

Governments in those days were content to reap all the benefits that might accrue and a large share of the profits, without engaging either themselves or the nations they governed in any direct responsibility in the event of failure or loss. The annual profits of the King of Portugal, as an example, from the spice trade alone, were estimated in 1529 at a sum of 200,000 ducats, an enormous sum at that date. And yet it was due mainly to the individual influence of Prince Henry of Portugal, that Vasco da Gama was enabled to make his great voyage round the Cape

which opened India to the Western Powers. And it has been cited as a curious fact in the world's history that it was the search for spice-growing countries which led to the first circumnavigation of the globe, as it led also to the discovery of another passage into the Eastern seas from the Western hemisphere, by the Magellan Straits and the Philippines, in a voyage under the ill-fated *Magellan* in the year 1521.

Borneo, which forms the centre and largest of the whole group of islands stretching from the Philippines to Australia, "fragments of a continent," as Wallace described them in his work on the Malay Archipelago, abounds in sources of wealth to this day, only requiring development by cultivation of the soil and capital under an equitable and civilised government. Both are essential requirements, and these it is the mission of the British North Borneo Company to supply. North Borneo, moreover, has this special and exceptional advantage, that while the native population is small and easily governed, there is a command of Asiatic labour, fitted to the climate, in the overflowing population of China within five days' steam. The Chinese are a race which has already fertilised, by industry and persevering labour, nearly all the islands and colonies east of the Cape, and still affords an inexhaustible reserve of labour wherever in these seas the workers can count upon fair wages and security for the fruit of their labour. This is an inestimable advantage for Borneo, where, under a tropical sun, it is impossible for Europeans to undertake the labours of the field, and who are not therefore, as are the planters in the West Indies, reduced to great straits from the difficulty of securing continuous labour at reasonable wages. Nor is it a less important and exceptional advantage for North Borneo that it is out of the region of typhoons and the earthquakes and volcanoes which periodically work such havoc and ruin in the Spanish settlements of the Philippines, and the Dutch possessions in Java and Sumatra further south.

The commercial and strategic value of North Borneo very early attracted the attention of the East India Company. Many of the islands from Manilla to Java, forming the Borneo group, with their tropic fertility and valuable products, possessed an amount of trade and prosperity which could not fail to attract attention, in the 16th century, before the withering hands of Spain and Holland were stretched over them. A prosperity of

which, it is sad to reflect, there is now no trace. Our early navigators leave no doubt on this subject. Captain Daniel Blackman, in 1714, relating his voyage to Borneo, alludes to a considerable trade with China; and Mr. J. Hunt, in a Report to Sir Stamford Raffles in 1812, says that "when the Portuguese first visited Borneo in 1520 the whole island was in a most flourishing state. The numbers of Chinese that settled on her shores were immense; the products of their industry and an extensive commerce with China in junks gave her land and cities a far different aspect from her appearance at this day, and their princes and courts exhibited a splendour and displayed a magnificence which has long since vanished."

This is further borne out by Piggafetta, who spoke of the town of Brunei having 25,000 houses, and being rich and populous. In 1809 there were not 3,000 houses left, nor 6,000 Chinese in the place, and not a junk had for years been seen in Bornean waters.

Mr. Hunt attributes this decay of commerce and prosperity to the direct action and mistaken policy of the Portuguese first, and subsequently of the Dutch. Mistress of the Eastern seas, as the latter became, we are told they exacted "by treaties and other ways the Malay produce at their own rates, and were consequently enabled to undersell the junks in China. But these Powers went further; by settling at ports in Borneo, or by their Guarda de Costa, they compelled the ports of Borneo to send their produce calculated for the China markets to Malacca and Batavia, which arbitrary and short-sighted proceeding at length completely cut up the direct trade by means of the China junks. The Rajahs finding their revenues reduced, turned their attention from trade and commerce to piratical enterprise. Agriculture was neglected, and lands hitherto cultivated were allowed to run to jungle and to waste." A result so obvious and inevitable that, if their own exclusive profit and not the destruction of prosperous communities was the object of the Portuguese or Dutch, it indicates a degree of judicial blindness as fatal to nations as to individuals. It was clearly suicidal, and they only reaped a fitting reward of their own flagitious acts. Mr. Hunt remarks too in his Report,—“that the English were not insensible to the value and importance of the once valuable commerce of Borneo, may be inferred from the efforts

they repeatedly made to establish themselves on its shores. There still exist the remains of a British factory in Borneo proper. Before the year 1706, they had made two successive attempts to fortify themselves at Benjarmasing, and twice they have attempted an establishment on the sickly island of Balam-bangan (lying north of Borneo near Marudu Bay), and in 1775 the Honourable Company's ship *Bridgewater* was sent to Pasir with 'similar views.'

Mr. Hunt concludes his report, in 1812, hoping that Borneo as well as Java would be retained by the British Government, in the following words: "In looking over the map of the world it is a melancholy reflection that so large a portion of the habitable globe as all Borneo is abandoned to barbarism and desolation." And he trusted "that another age may not be suffered to pass away without exhibiting something consolatory to the State, the Philosopher and the Philanthropist."—A hope disappointed in the sequel, but one which yet may be realised in this generation, for such is the desire and aim of the British North Borneo Company.

The Indian Press, since the grant of the Charter, has spoken in the same sense. The *Bombay Chronicle* remarked: "The date of the Royal Charter for the incorporation of the North Borneo Company we hold to be a new era in the history of the progress of civilisation and commerce, and tending to the benefit of the world at large, since the island, which is inexhaustible in mineral and vegetable resources, has as yet remained a stranger to the enterprise of the merchant and the man of science. In the intimate connection of Great Britain with the island of Borneo, India will find before long a fertile source of enhancing the prosperity of her people."

So we trust both India and Great Britain may find in this sanguine anticipation of the Indian Press a true forecast of a near future in the development of the Colony and the resources of the territory of British North Borneo.

The recent aspirations of the chief Continental powers—notably France and Germany—for Colonial expansion, and the numerous annexations made in furtherance of this object in Africa, in the Pacific, and the Eastern seas, are facts which give increased importance to the acquisition of North Borneo by a British Company, secured, as it is, by a Royal Charter and the British flag from all aggression or encroachment on the part of

any alien or foreign power. From its central position, moreover, it possesses advantages both political and strategical, which no other island in the Eastern Archipelago presents, and, under existing circumstances, its value in a national no less than a commercial point of view cannot well be over-estimated.

Its past history bears this out, as shown above, when a flourishing trade with China and the adjoining archipelago, and a large and industrious population existed, before the advent of Portuguese, Dutch, and Spaniards in these regions. The discoveries of Bernardo Dias and the voyage of Vasco da Gama round the Cape opened the way to India and China by sea, with fatal effects to native industry. The ruthless policy of all the first settlers in the Eastern Archipelago, among islands so rich and populated, destroyed all security for life or property to the natives. With this loss of security their commercial and agricultural prosperity rapidly disappeared, and Borneo was reduced, in common with many other most productive and flourishing islands, to a wilderness, and the inhabitants converted into pirates and head-hunters, driven from the more peaceable and productive pursuits of agriculture and commerce.

Much of the fine territory of Borneo, rich in all natural products, with ranges of mountains to vary the tropic climate, and numerous rivers to afford cheap and easy means of transport from the interior, has thus remained for three centuries in a state of abandonment and jungle, and with a very scanty population. It came into the possession of the original grantees in 1877 in this state, and was transferred to the present Company only in 1882. What progress has been made in this short period, in efforts to introduce civil government in harmony with British laws, and to develop all the latent resources of the country, can only be imperfectly estimated by the products now shown in this Exhibition.

Time was wanting to enable the resident officials to make a complete or exhaustive exhibit of the natural products spread over so large an area, much of which has not yet been fully explored or settled. Nevertheless, great exertions have been made to bring together, on a very short notice, as many of these products as may chiefly be counted upon in the near future, to furnish the staples of a considerable trade, and offer sufficient inducements to merchants and planters to contribute in promoting so good a work. Already two companies have been

actively engaged in the cultivation of tobacco ; while the returns of trade* in the brief period of five years suffice to show a rapid and considerable progress.

If these may be looked upon as small beginnings, compared with the extent and value of British trade in the China Seas alone, it must be remembered how small and unpromising, as well as insignificant, were the two settlements of Hong Kong and Singapore in their first years, though now forming the great central depots of a trade which takes the whole world in its circuit. Not forty years ago, Hong Kong—as the writer remembers it—was a barren island, a bare rock, with only a few fishermen for its inhabitants. At the present day there is a large city with a population of more than 120,000 Chinese domiciled in the island, while ships crowd its capacious harbour under every flag which flies in the two hemispheres. A similar history has marked the development of Singapore and the Straits Settlements. These have only risen to their present state of wealth and prosperity within the last century, and Singapore still more recently. In 1880 the value of the united exports and imports of Singapore amounted to £25,740,174, due mainly to three great factors—geographical situation, an equitable Government, and a plentiful supply of cheap labour in the Chinese colonists. With similar, if not equal advantages, there is reasonable ground to hope that a like future may be in store for the Company's territory. Nor does such a result concern the Colony and the Company alone. Shut out, as English goods are, from all the continental States by protective duties, Europe is daily becoming of less value to us as an outlet for our manufactures. Not only are our goods excluded by hostile tariffs, but we are further debarred from the sale of our goods in European markets by the growing progress of the industries of those countries, protected as they are by bounties, the longer hours of labour, and the lower wages prevailing there. Hence, in view of the present economic condition, and the future prospects of our country, the chief hope of an improved state of trade lies in the opening and development of new markets in less civilised countries and in semi-barbarous regions. The markets of the East are still open where Russian tariffs do not exist, and no prohibitive or hostile duties are likely to be permitted under

* See tables in Appendix.

native rule. We should not be slow therefore to profit by this condition, seeing that England can only prosper, or continue to live industrially, by a vigorous policy steadily persevered in, for the extension and protection of the markets yet open in the East to her industries, or only awaiting development and English enterprise to make them thriving marts to the mutual advantage of natives and British alike.

It is in furtherance of such a policy and the advancement of these national objects of highest importance that this infant Colony is now, for the first time, brought in line with the other colonies of Great Britain, by the appearance in the Colonial and Indian Exhibition of some of its chief products. And however modest the contribution, it is hoped the chief exhibits will be found to give promise at no distant date of considerable mercantile value, and serve to draw public attention to their prospective importance and the facilities for a rapid development of trade.

CHAPTER I.—MODERN HISTORY.

THE modern history of North Borneo may be said to commence with the signing of the Treaty between Great Britain and the Government of Brunei on the 27th of May, 1847, by which the cession to the British Government of the island of Labuan, made in 1845, was confirmed and that island was thereupon created a British Colony, and a Consul-General was appointed to Brunei.

It was hoped that the opening of a free port at Labuan under the English flag would ultimately develop the rich resources of Northern Borneo, and that the example of good government might spread its influence to the mainland.

Such, however, did not prove to be the case, and the Brunei Government, freed by the prestige of the British flag from the necessity of guarding against the incursions of the Sulu and Illanun pirates, sank lower and lower in administrative weakness and corruption. Its power soon became practically limited to the districts in the immediate vicinity of the capital, though nominally the Sultan's authority extended as far as the western shores of Marudu Bay,—whence to the Sibuku river the Suzerainty of the Sulu Sultan was recognised in an equally nominal manner.

The United States was the only other Power which followed the example of England and entered into a treaty with the Sultan of Brunei, and appointed a Consul. In 1865 this Consul procured for himself from the Sultan a cession of territory, including most of the Provinces now embraced in the territory of British North Borneo, with rights of government. These rights and cessions he transferred to the American Trading Company of Borneo, which proceeded to form a settlement on the Kimanis river, some 60 miles from Labuan. The Company's capital

proving quite inadequate for the purpose, the settlement was soon abandoned, and no further action was taken until 1875, when, it having been ascertained that the American cessions were still recognised as valid by the Native Government, Mr. Alfred Dent became specially interested in these cessions, and formed a private Association, in which, on the 29th of December, 1877, the Brunei Court vested in perpetuity the government of that portion of Northern Borneo which extends from the River Kimanis on the west to Sibuku on the east,—with the exception of a few small rivers, the private property of independent chiefs,—the Association undertaking to pay an annual tribute of \$15,000, subsequently reduced to \$7500 by mutual agreement.

As stated above, the Sultan of Sulu made claim to rights of sovereignty over much of the country which had been ceded by Brunei, and on the 22nd January, 1878, he transferred all his rights to the Association for an annual payment of \$5000, and in the same year the Association, flying the flag of the house of Alfred Dent and Company, established stations at Sandakan, Tampassuk, and Papar; W. B. Pryer, W. Pretymen, and H. L. Leicester being the pioneer officers of the newly-established Government.

After visiting North Borneo in person, Mr. Alfred Dent returned to England, and considerable interest was soon evinced in the novel venture, notably by Sir Rutherford Alcock, K.C.B., Admiral the Hon. Sir Henry Keppel, G.C.B. (who years previously had materially assisted in consolidating the power of the Brooke dynasty in Sarawak), Admiral R. C. Mayne, C.B., the Hon. W. H. Read, M.L.C., of the Straits Settlements, and Mr. R. B. Martin, M.P. Early in 1881 the British North Borneo Provisional Association, Limited, was formed, taking over the cession with all rights and properties. And after much correspondence with the English Government, and considerable opposition from Spain and Holland, a Royal Charter incorporating the British North Borneo Company was obtained, which received the assent of Her Majesty Queen Victoria, under the Great Seal, on the 1st of November, 1881.

The Charter, a copy of which is appended, authorised the

Company, *inter alia*, to acquire from the then holders the rights ceded by the Sultans of Brunei and Sulu, binding them to fulfil the promises of payment and other promises contained in the original grants. It directs that the Company shall always remain British in character and domicile, and that no transfer of its powers or interests can be made without the consent of the British Government. The English Secretary of State, "if he is willing," is to undertake the decision of any differences which may arise between the Company and either Sultan, and the dealings of the Company with foreign States is subject to the control of the British Government. The Company is to use its best endeavours to "discourage and, as far as may be practicable, abolish by degrees any system of domestic servitude existing" in the country, and no foreigners are to be allowed to own slaves of any kind in the Territory. The religions of the inhabitants are to be respected, and careful regard is to be had to the customs and laws of the various tribes, especially as regards questions relating to landed property, marriage, divorce, and other rights of property and personal rights, and the Secretary of State can, if he sees fit, make suggestions as to the general treatment of the inhabitants, which suggestions the Company are bound to adopt. Her Majesty reserves the right, "in case at any time we think fit," to provide for the exercise of her extra territorial jurisdiction under the Treaty with Brunei, in which case the Company whose officers would be appointed to discharge the judicial and other functions in Her Majesty's name would bear all expenses of the exercise of such jurisdiction.

Up to the present, however, Her Majesty has waived her extra-territorial jurisdiction over British subjects and in mixed cases in North Borneo.

The appointment of the Company's Governor in Borneo is subject to the Secretary of State's approval, and the distinctive flag, "indicating the British character of the Company," is to be such as may from time to time be approved by the Secretary of State and the Admiralty.

The flags so approved are the Union Jack "defaced" with a lion passant in the centre, and the British blue and red ensigns with the lion in the fly. The Governor uses

when afloat, a distinctive personal yellow flag with the lion in the centre. Section 15 contains seventeen clauses defining the general powers of the Company, such as the right to acquire further cessions of territory ; to settle and promote immigration into the country ; to make grants of land and exclusive or other concessions of mining, forestal and other rights therein ; to farm out the right to sell spirits, tobacco, opium, salt, or other commodities ; to deal in merchandise ; to establish agencies in British colonies and possessions ; to sue and be sued in British or foreign courts by the Company's name of incorporation ; and to take and hold messuages and heraditaments in England and British possessions generally. Section 17 provides that there shall be no general monopoly of trade, and that, subject to Customs duties for revenue purposes, trade with the Company's territories shall be free.

The position and status of the Company has recently been defined by the Secretary of State for the Colonies, to the effect that "the British North Borneo Company are in the position of the administrators of a foreign State," so that, to take for instance a question of extradition, the Company would ask for the extradition of a fugitive criminal, not to themselves as a company, but to the foreign State whose territories they administer.

Since the granting of the Charter, the Company have acquired the Putatan River (1st May, 1884), for the annual payment of \$1000; the Padas District (November, 1884), including the important rivers of Padas and Kalias, the Tawaran and Bangawan rivers being included in the same deed of cession, under which an annual tribute of \$3000 is payable; the Kawang River (21st February, 1885), and the Mantanani Islands (10th April, 1885), for which a lump sum of \$1300 and \$350 respectively were paid.

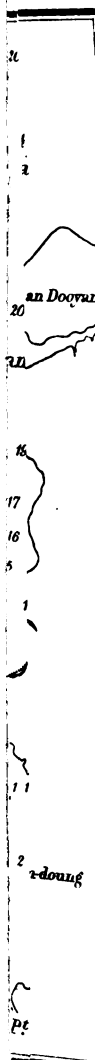
It may be remarked in passing, that the Putatan and Padas cessions have already proved valuable acquisitions, the latter, under the name of Province Dent, having been the first to equalise its revenue and expenditure, including cost of police and cession money, and this, too, in the first year of its occupation, and notwithstanding the strenuous opposition of a disappointed chief backed by certain influences of foreign origin.

The Spanish Government, at the outset, strongly objected to the cessions made by the Sultan of Sulu on the grounds that the territories in question had long ago been ceded to the Spanish Crown, which claimed the suzerainty over the whole Sulu Archipelago and the States thereto tributary. This contention was finally waived on the signing of the Protocol by the Representatives of Great Britain, Spain, and Germany on the 7th March, 1885, Article III. of which provides that : "The Spanish Government renounces, as far as regards the British Government, all claims of sovereignty over the territories of the Continent of Borneo, which belong, or which have belonged in the past to the Sultan of Sulu, and which comprise the neighbouring islands of Balambangan, Banguey, and Malawalli, as well as all those comprised within a zone of three maritime leagues from the coast, and which form part of the territories administered by the Company styled the "British North Borneo Company."

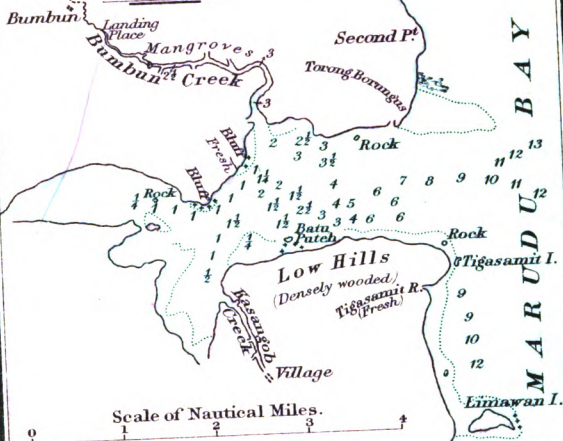
The Netherlands Government also raised objections to the establishment of the Company's Government in Borneo, on two grounds : Firstly, that the fact of the Company being British, constituted indirectly a breach of the provisions of the Treaty of London of 1824, to the effect that a mixed occupation by England and the Netherlands of any islands in the Indian Archipelago is to be avoided. Secondly, that the Sibuku River is included in the cession from Sulu, whereas the Dutch claim that their boundary extends to the north of that river, as far as Batu Tinagat.

The first objection has been withdrawn, but the second still remains under the consideration of the British and Netherlands Governments. In the meantime, the Company, on the 7th September, 1883, hoisted their flag on the south bank of the Sibuku, while the Dutch have erected an obelisk on Batu Tinagat, and keep a gunboat stationed at the Tawas river.

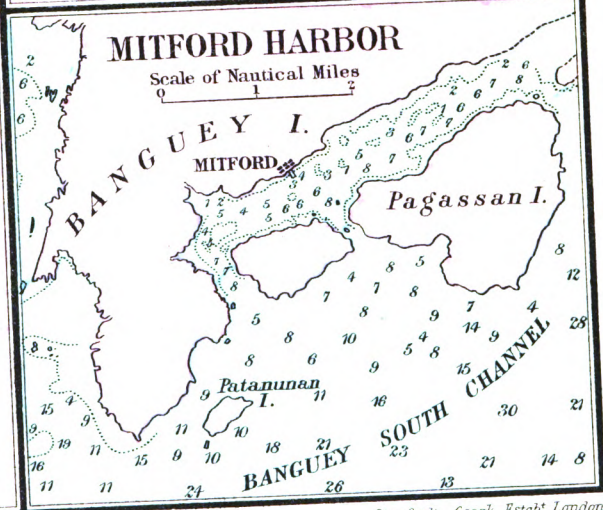
The Government of Sarawak from the first took up a bitterly hostile position towards the newly inaugurated State, Rajah Brooke informing his Council on the 24th April, 1878, that he should take measures to caution the inhabitants to defend themselves if they did not wish to receive strange owners into their country ; and he



KUDAT HARBOR



MITFORD HARBOR



Stanford's Geog^y Estab^t, London.

personally visited Pangeran Roup, the chief of the Bajows, a tribe the most difficult to manage in the territory. It is hoped that time or other means will be found to neutralise His Highness's hostility towards a Company which has already done so much to ameliorate the condition of the inhabitants, and with whose dealings he has no right of interference.

The interest of the American Government was also excited in the cessions acquired by Mr. Dent, and Commodore Schufeldt was, in 1878, ordered to Brunei to report thereon, and to discover what American interests were represented in that part of the world. He was able to report that he could discover no American interests, "neither white nor black."

CHAPTER II.—GEOGRAPHY.

A. *Extent, Boundaries, Etc.*

THE territory of British North Borneo includes the whole northern portion of the great island of Borneo, from the Sipitong stream on the west to the Sibuku river on the east, and is coterminous with the northern boundary of the Sultanate of Brunei, on the west coast, and approaches that of the Netherlands possessions on the east. It is, roughly speaking, of pyramidal form, the apex being towards the north, the China Sea washing its western, and the Sulu and Celebes Seas its eastern coasts.

The Sibuku boundary is in about lat. $4^{\circ} 05' N.$, the Sipitong boundary in lat $5^{\circ} 06' N.$, while the boundary extends to the north as far as lat. $7^{\circ} 25' N.$ Gura Peak, in lat. N. $3^{\circ} 52'$, is taken to be its extreme south limit inland. The most westerly point is that of Kalias, long. $115^{\circ} 20' E.$, and the most easterly, Hog Point, $119^{\circ} 16' E.$ Its area, exclusive of islands, is computed at 30,403'87, and with the islands 31,000 square miles.

The government of a few small rivers, owned by independent chiefs on the west coast, aggregating 107 square miles in extent, has not yet been acquired by the Company,

viz.: the Padas Damit (or lesser Padas), Kwala Lama, Membakut, Kinarut, Inanam, and the Menkabong. For the sake of comparison it may be noted that the area of Ceylon is 24,702 square miles, that of Johore, 20,000, Perak, 8000, and Selangore, 5000 square miles.

The coastline of the mainland measures about 1000 land miles.

From a geographical point of view the territory is favourably situated as regards commercial routes, being almost midway between Hong Kong and Singapore, while the course recommended on the Admiralty charts to vessels trading to China and Japan in the north-east monsoon, through the Palawan Passage, brings them within ninety miles of the harbours of the west coast. On the other side steamers trading between China and Australia pass within half a day's steaming of the magnificent harbour of Sandakan, the present headquarters of the Company.

The following table gives the distances between Sandakan and the principal commercial ports in the Far East:

Sandakan to Singapore	. . .	1,000 miles.
„ Hong Kong	. . .	1,200 „
„ Labuan	. . .	300 „
„ Manila	. . .	600 „
„ Sulu	. . .	181 „
„ Bulungan	. . .	300 „
„ Macassar	} Celebes . .	{ 750 „
„ Menado		
„ Port Darwin, Australia	. . .	1,500 „

Mempakol, the most westerly station in the territory, is only about 700 miles distant from Singapore.

B. Harbours and Roadsteads.

As a whole, the island of Borneo, as pointed out by Wallace, is very little indented with bays: "The few it possesses being towards the north-eastern extremity, where the coast is somewhat higher and more abrupt." On the other hand, owing to the gradual tapering to its apex of the northern portion of the island, the only good navigable rivers are to be found towards the south.

A detailed description of the coastline of the territory

is not required here, as those interested in such information can find full details in 'The China Sea Directory,' vol. ii.

It will suffice to enumerate the principal bays and anchorages, commencing with the west coast. Off Nosong Point, Pulo Tega affords an anchorage on one side or the other in either monsoon for large vessels. Half way between this and Gaya is the anchorage of Dinawan, with no less depth than $6\frac{1}{2}$ fathoms. Gaya Island affords protection from the north-east monsoon in two deep bays on its southern side, and together with the island of Sapangar and Gaya Head forms, with the mainland, the fine bay known as Gaya and Sapangar Bays. The united length of the two bays is about 7 miles, with a depth of water ranging from 8 to 13 fathoms. The width is about 4 miles, narrowing to $1\frac{1}{2}$ at the north end of Sapangar Bay. The main entrance is between Gaya and Sapangar Islands, with a width of 4500 yards across, and a depth of about 17 fathoms. It has been remarked that "for purposes of commerce these two bays are large enough to shelter every vessel trading to the east during both monsoons." Unfortunately, the shores all around are, as a rule, abruptly hilly, rendering it difficult to select good town sites. The Company has established a station on the east end of Gaya Island, where vessels drawing 20 feet can lie alongside the Government wharf well sheltered. The natives from the mainland bring in supplies of fowls and ducks, and it is a transshipping port for cattle from the opposite coast to Sandakan and Sulu. Water is obtained from springs and wells.

Recently Mr. S. E. Dalrymple has examined a harbour on the mainland near Tanjong Aru and the Putatan river, to the south-east of Gaya. This has not yet been officially surveyed,* but Mr. Dalrymple reports three entrances with a depth of 6 fathoms, and an average depth in the harbour of 5 fathoms. A wharf of 225 yards will lead into $3\frac{1}{2}$ fathoms. He concludes his report by saying, "Finally the new harbour enjoys an unlimited amount of flat land to build on, stretching from the very water's edge,

* Since this was written, a survey of Tanjong Aru has been made by order of Admiral Hamilton, C.B., and confirms Mr. Dalrymple's anticipations.

and a closely contiguous population of some 500 Bajows and 6000 to 7000 industrious Dusun agriculturists. It is my opinion that, next to Sandakan, this will prove to be the best harbour in North Borneo, as regards size, depth, accessibility, good holding ground," &c. He reports a good supply of fresh water.

Proceeding north from Gaya, Ambong Cape is reached, between which and Sundal Point are three bays—Ambong Bay, depth of water 5 to 8 fathoms; Tangah Bay, 8 to 9 fathoms, and Tundal Bay, $4\frac{1}{2}$ to 11 fathoms. In neither of these has any settlement been formed by the Company, there being no population to speak of; consequently provisions cannot be depended upon, and the water supply has not been examined, though two sources are reported in the first. All three bays are open to west and north-west winds. Ambong Bay affords shelter in both monsoons, and the other two in the north-east monsoon. The Admiralty Chart No. 1778 gives a plan of the three bays. About 3 miles to the north of Ambong Bay is that of Usakan, an inlet some 2 miles long, affording good anchorage in the north-east monsoon, but exposed to the south-west. Depth of water 6 to 10 fathoms. Usakan Island forms with the mainland the small bay of Abai, into which debouches the river of that name. The depth of water is marked in the Admiralty Chart as $1\frac{1}{2}$ to 2 fathoms. There is communication for boats between Usakan and Abai Bays. In the latter a station was at one time established by the Company, but was withdrawn as the amount of trade attracted did not warrant the expenditure involved. Water is obtained from wells at Abai of fairly good quality. Cattle are occasionally obtainable, but supplies cannot be relied on.

The Mantanani Islands, 12 miles from the mainland, afford anchorage in either monsoon. They are uninhabited, except during the season when the edible birds' nests are collected from the small caves which exist.

The little bay of Agal, with a depth of $3\frac{1}{2}$ to 4 fathoms, gives a secure anchorage for a vessel in the north-east monsoon. This is the last of the anchorages worth mentioning on the west coast.

Turning round Sampanmangaio, the most northerly point

of the mainland of Borneo, we enter the great Bay of Marudu. This bay runs nearly due north and south about 28 miles, and is some 17 miles broad at its entrance, decreasing to about 9 at its southern end. Its range of depth may be stated at from 3 to 20 fathoms. On its western shore, 11 miles from the entrance, is the excellent harbour of Kudat, at which a station has been formed by the Government. A plan of the harbour is given on Admiralty Chart No. 946. At the entrance the depth of water is 8 to 9 fathoms, and a distance of $1\frac{1}{4}$ miles inwards reaches the 5 fathoms line, the 3 fathoms line being about half a mile further to the west. A jetty has been built into $2\frac{1}{4}$ fathoms of water. A small stock of coal is kept up for the use of calling steamers. The water supply is not good. Cattle and vegetables are, as a rule, obtainable. Lights are exhibited on the jetty and on the flagstaff, the latter being 123 feet above sea level. Kudat Harbour was first reported in August, 1881, by Commander Johnstone, H.M.S. *Egeria*.

On the eastern shore of the bay there is said to be a well-sheltered deep-water harbour at Selimpadan, south of the Binkoka river, with excellent supplies of fresh water and a convenient site for a town, with land suitable for agricultural purposes in the vicinity. This harbour has not yet been surveyed.

Some twelve miles north of the entrance to Marudu Bay are the two large islands of Balambangan and Banguay, the former 40 square miles and the latter 167 square miles in extent. In both are harbours.

On the east side of Balambangan, which is uninhabited, are two inlets known as North and South Harbours, both affording good drinking water, but the purest being found in the southern one. Full directions for entering both harbours, which have a depth from 3 to 9 fathoms, but not free from dangers, will be found in the 'China Sea Directory,' vol. ii.

The harbour on the south side of Banguay Island was not reported until 1884. The following is the report of Mr. John Robertson, the Company's Assistant Surveyor, under date 12th January, 1886:—"Harbour. On reference to the chart the position of the entrances, beacons, and

reefs will be seen. The part surveyed is $4\frac{1}{2}$ miles long by an average of three-quarters of a mile in width. There are three entrances, of which the middle one is the principal. Its width at the narrowest point is 575 feet. The depth varies from 5 to 12 fathoms. The part of the harbour immediately in front of proposed site of town has a depth of water varying from 4 to 10 fathoms. The only disadvantages it has got are its comparative smallness and the presence of a dangerous reef near to the wharf. The entrance at the west end of the harbour has a width of 930 feet and a depth of 8 to 9 fathoms. This entrance can never be much used, as there is a reef in the passage which reduces the width to 400 feet. The entrance at the easterly end of the harbour has a width of 1040 feet and a depth of 7 to 8 fathoms. The passage from here to the proposed site of town is good, and has an average depth of 6 fathoms in the navigable parts. The harbour is well sheltered from both monsoons."

The reefs are all beaconed off.

The harbour is formed by three islands on the one side and Banguay on the other. Vessels using the Mallawalli Channel pass close to the harbour. An experimental settlement has been formed near the west end, to which the name of Mitford has been given. The water supply is reported good. A German company has a tobacco estate on the Limbuak river, west coast, and the interior is sparsely inhabited by peaceable Dusuns. Fleets of Bajow prahus are to be seen on the coasts, shifting their anchorage as the seasons demand.

In the Mallawalli Passage are numerous islands or islets, of which Mallawalli (15 square miles) is the largest. Off most of them anchorage can be found affording shelter from the prevailing winds.

Leaving Marudu Bay and steering to the south-east, the large bays known as Paitan and Marchesa are passed, neither of which have been surveyed. Next comes Labuk Bay, surveyed in 1883 by Commander the Hon. F. C. P. Vereker. He reports the bay to be 19 miles wide and 16 miles in depth to the Labuk River in its south-west corner. The north-west part of the bay is shallow and unnavigable. The south-western portion is deeper,

affording a passage, in one part giving only 9 feet at low water, to the Labuk River.

Twenty miles to the south-west of Labuk Bay is the magnificent harbour of Sandakan. At its entrance, between Balhalla and Trusan Duyong, it is $1\frac{1}{4}$ miles wide, from which place it gradually increases to its greatest width, viz. 5 miles. Its length is 15 miles, and it lies in a N.E. and S.W. direction.

The only part properly examined by the Admiralty is that north of Pulo Buy and the Bay of Sapa Gaya, situated on the east shore, but large sailing vessels proceed as far as German Town, on the island of Timbang, 11 miles up the bay, to load timber. Sandakan, the capital of the territory, is built on the north shore, three-quarters of a mile from the entrance. The only danger in approaching it is the Atjeh Rock, lying off the end of the Sandakan Pier. It has $2\frac{1}{4}$ fathoms low water, and is marked by a white buoy. From the entrance to the end of the bay the depth of water varies from 16 to 3 fathoms. Some thirteen rivers run into the bay, and a bar has formed 6 miles from the entrance with a depth of water of 4 fathoms at low water, spring tides. Spring tides rise 6 feet 9 inches; neaps vary from 1 foot to 4 feet. On the same shore as the town of Sandakan, and about 10 miles below it, is an inlet known as North Harbour, 3000 yards across at the entrance, and extending inland about 3 miles, with an average depth of from 7 to 10 fathoms. The Sapa Gaya Bay, on the shore opposite Sandakan, affords splendid anchorage for large vessels, lowest water $3\frac{1}{2}$ fathoms. There are other good anchorages in the harbour, well sheltered. A pier has been erected at Sandakan, at which vessels drawing 22 feet can lie at low water. Supplies of poultry, beef, fish, vegetables, and liquors are obtainable in the town, and the water is plentiful and good. A good stock of coal is kept up for the use of Her Majesty's vessels and calling steamers.

Admiralty plan No. 950 gives details of the harbour.

Thirty miles to the south-east of Sandakan is Dewhurst Bay, 5 miles up the Kinabatangan. It is 3 miles long by 1 broad, with depths of from 1 to 2 fathoms. Fresh water has not yet been discovered. The river between the

entrance points is 6 cables broad, with depths of from 4 to 5 fathoms ; but the bar, which extends $2\frac{1}{2}$ miles seaward, has a depth of only 12 feet at high water, spring tides. Commander Vereker adds the caution, "that vessels drawing more than 8 feet should not attempt to cross the bar without a boat ahead, as the tides are much influenced by the winds, rendering the time of high water uncertain."

A sketch of the Kinabatangan River will appear under its proper head, but it may be here remarked that the river has several mouths, and that the one usually made use of by small steamers is that known as the Mumiang, about 16 miles from Sandakan.

The mouth of the Marowap River, 52 miles to the east of Sandakan, is 7 cables wide at the entrance, with depths of from 3 to 5 fathoms. On the bar there is a depth of 14 feet at high water, spring tides.

Between Tambisan Island and the mainland is a narrow channel with 3 to 4 fathoms of water. The western end is blocked by a reef, though navigable for boats. The entrance is exposed to the N.E. monsoon.

Dent Haven, to the south of Tanjong Unsang, is nearly 2 miles wide, and affords good anchorage in the S.W. monsoon in 5 fathoms.

It may be noted that whereas in Sandakan springs rise 6 feet 9 inches, off Dewhurst Bay they rise $5\frac{1}{2}$ feet, off Tambisan 3 feet, and in Dent Haven $3\frac{1}{2}$ feet.

The coastline from Dent Haven to the Sibuku River, including the large Darvel Bay, has not yet been properly surveyed.

In Labun Bay, and off Sibat, Tolibas, and Tuncu, is good anchorage in the N.E. monsoon.

At the head of Darvel Bay the north end of Saccar Island forms with the mainland a fine harbour, well protected in all weather. The soil in this district is some of the richest in Borneo, and it is probable that a settlement will shortly be established here.

At Silam is a Government station and Experimental Garden. The harbour is well sheltered, but there are many coral banks. The depth of water varies from 2 to 20 fathoms. Vessels drawing 16 feet anchor close to the

settlement. Beef, poultry, and fish can generally be obtained. The water is excellent and abundant.

In the southern portion of the bay there is deep water along the north and west of the Island of Timbu Mata, and a secure anchorage off Grassy Point, 3 to 13 fathoms, where deer and pig can generally be secured.

To the south of Grassy Point is a deep passage separating Culi Babang Island from the mainland, to which the name of Trusan (passage) Treacher has been given.

This passage, which is clear of dangers, is recommended by Lieutenant E. R. Connor, R.N., for vessels proceeding from Darvel Bay to Sibuku, or any of the numerous rivers north of the Sessajab. "This passage is much to be preferred to that viâ Omodal Island, as, in addition to being shorter, the long reefs running to the south-west of Omodal are occasionally somewhat difficult to make out."

Between Omodal and Culi Babang is a well-sheltered anchorage, with 8 to 9 fathoms. There is no water on the island, the natives obtaining their supplies from the opposite coast.

Off Mabul Island good anchorage is found in the south-west monsoon, in 11 fathoms, mud.

Friedrich Haven, off the mouth of the Palas River, was surveyed by an Austrian frigate of that name. There is anchorage in $5\frac{1}{2}$ fathoms.

Between Batu Tinagat and the Sibuku River, the southern boundary of British North Borneo, is an extensive bay recently surveyed by the Dutch. The depth of water runs from 17 to 2 fathoms. Some 14 or 15 rivers run into this bay, which is well sheltered, and affords excellent anchorages. The Dutch have a gunboat stationed at the Tawao River, but there are no villages to be met with, nor even boats, save occasionally some wandering Bajows engaged in the *bêche-de-mer* fishery, which is capable of great development, and only awaits the settlement of the boundary dispute with Holland, to which reference has already been made.

From the above sketch it will be seen that British North Borneo is exceptionally favoured in the matter of harbours, roadsteads, and anchorages.

C. Mountains and Rivers.

The courses of the mountain ranges have not yet been laid down with any attempt at accuracy in the published maps.

It may be stated generally that there is a backbone range, which, commencing in the great mountain of Kinabalu (13,700 feet), 52 miles from the northern extremity of the island, runs in a south-westerly direction throughout the territory. The range is much nearer to the west than to the east coast, with the result that the rivers on the west are inferior in length to those on the east side, though the scenery is grander and the coast more indented with bays and inlets. Kinabalu itself rises within some 25 miles of the west coast; and this may be taken to be the average breadth of the coast between the backbone range and the sea. From this range, which has a height of from 5000 to 13,700 feet, many ridges are given off at right angles; and these in many cases are connected by cross ridges, running north and south. These ridges, as a rule, rise abruptly from the plains, and are steep and narrow.

In addition to this range, and between it and the sea on the west, is what is known as the Coast range, running parallel to it from somewhat to the north of Gaya to the southward, and with a height of between 3000 and 4000 feet.

Kinabalu has been ascended, though not perhaps to its highest peaks, by three travellers, Lobb, Low, and St. John. None of these travellers were successful in taking their instruments to the top, and the figures of height are those determined by Sir Edward Belcher by trigonometry. According to St. John, the summit is about two miles in length, but the intrepid explorer Wittl gives the summit an extent of 4 to 5 miles of about uniform height. He further states that the highest peak is incorrectly marked on the Admiralty Charts, and should be 5 miles to the S.S.E. of the point there shown. Wittl, who had observed Kinabalu from every side, writes as follows: "A chain 4500 feet high borders Kinabalu to the N.E., running S.E. to N.E., appearing like an enormous breastwork to the mountain

as a redoubt, the Kopuakan Valley (containing one of the head waters of the Sugut River) forming the ditch and Tambugukon (8000 feet), a formidable bastion. The whole looks from this side (the N.E.) impregnable, and is evidently impracticable."

Burbidge, in his 'Gardens of the Sun,' gives it as his opinion, after experience, that the easiest route to Kinabalu is by the Tampassuk River on the west coast.

Borneo differs from all the other large islands of what Wallace terms Australasia in not possessing a single volcano, either active or extinct.

The summit of Kinabalu is said to consist of syenitic granite, here and there crossed by belts of a white rock ; below the granite a hard kind of shale and greenstone.

* About 50 miles to the S.E. is an independent group of mountains, of which the highest is Mentapok, said to be 8000 feet.

In the upper course of the Labuk, which flows to the south of Mentapok, the banks on both sides are very steep, the hills rising from 200 to 500 feet.

About the centre of the Darvel Bay Peninsula is Mount Hatton, so named in honour of Frank Hatton, the Company's Scientific Explorer, who lost his life by an accident on the Segama River. Its height is marked on the Admiralty Chart as 1990 feet. To the south of this is the Bagahac range, the highest summit being 2750 feet.

* At the back of the Government station of Silam is the hill known as Bud Silam, 3000 feet in height. Between Silam and the Sibuku River are several lofty peaks not yet examined.

* For many years there appeared on charts and maps of Borneo a large mythical lake to the south-eastward of Kinabalu. The confusion appears to have arisen from the fact that an extensive plain some 30 miles to the east of Kinabalu is known to the aboriginal inhabitants as Danao, which has no particular signification in their language, but amongst the Malay-speaking tribes of the coast, from whom travellers would derive their information, signifies "a lake." This plain, 1600 feet above the sea, is of oblong form, extending some 4 miles by 1, surrounded by moun-

tains on each side, and watered by two streams, the Manzanaban and the Linogu, the latter being the source of the Labuk River. Danao is well cultivated, and for North Borneo, populous. Hatton, who visited it after Witt, was told that sometimes in the wet season the plain is a sheet of water for more than a month at a time.

Rivers.—The principal rivers are, on the east coast, the Kina Batangan, Labuk, Sugut, Paitan, Segama, Benguya, Moanud, Alfred, Sigaliud, and others; on the north the Bengkoka, Bongan, &c.; on the west coast the Padas, Kalias, Putatan, Tampassuk, Kimanis and others. Of the above the Kina Batangan is far the finest, being navigable for steam launches for over 200 miles, while its tributaries the Lokarn, Quarmote, Karamork, Mengkowago and others are themselves fine rivers. Some days' journey up the Quarmote above its junction with the Kina Batangan are the Alexandra falls, never yet seen by any European. There is a way behind the mangroves from Sandakan Bay to the Kina Batangan. The Labuk is a river similar in character, but not navigable for steam launches for any great distance; its chief tributaries are the Galagaan, Toongud, Arngsoan and others; it falls into the sea in the Labuk Bay shortly to the north of Sandakan, to which place all its trade comes; all the above-mentioned rivers are capable of supporting a very large population.

The Padas is a very fine river navigable for a long distance, and having on its banks many sago plantations, which are a source of considerable wealth to the inhabitants of the district.

CHAPTER III.—POPULATION.

THE population of British North Borneo is very scanty, so much so that vast tracts on the east coast and in the interior are simply uninhabited forest. On the west coast the population in some districts is fairly large. The want of people on the east coast is due to the ravages, in old

days, of pirates by sea and head hunters by land. Commencing on the seaboard of the east coast, the first people met with are the Bajaus, or Sea Gypsies, on the littoral. The villages on the sea coast and at the rivers' mouths contain many Sooloos, Bugis, Illanuns, and others, but the first tribe of true Bornean aboriginals met with is the Boolloodoopy, who have villages from Sugut and Paitan on the north to Tabunac on the south. Largely mixed up with them are the Doompas on the north and the Eraans on the south. Inland from these people the whole bulk of the population are known as Dusuns or Sundyaks, divided up into many tribes and sections, including the Roongas, Kooroories, Umpoolooms, Saga Sagas, Tunbunwhas, Tingaras, Roomanows, and many others, those of the far interior little better than roving savages, while nearer either coast, where they have rubbed against Mahommedan civilisation, they are much more cultivated both in their dress and manners. The Bajaus or Sea Gypsies are a curious wandering irresponsible sort of race, rather low down in the scale of humanity, living almost entirely in boats in families. Though undoubtedly of Malay origin, they are much larger in stature, and stronger and darker than ordinary Malays. Not caring to store up property, and rarely troubling themselves as to where next week's meals are to come from, they pick up a precarious livelihood, along the shore line, by catching fish, finding sea slugs and turtle eggs, spearing sharks, and so forth. They lead a wild, free, roving life in the open air, untroubled by any care or thought for the morrow. The weapons they use are the parang, spear, round shield, and tumbeloosow; very few of them have guns. The tumbeloosow is a long light lance, made of bamboo, with a sharp wooden spike at the end; this they can throw for two or three score yards, thus giving them a great advantage over any people not armed with any projectile. The well-known Balignini were a subdivision of the great Bajau tribe; they used, as professional kidnappers, to harry the seas from Macassar, Batavia, and Singapore on the south, to Manila on the north; they did not, as a rule, murder without they thought there was occasion to do so. In Sandakan and other places there are many people now living who were

kidnapped in very distant parts, and brought up for sale, in the old times. The last pirate raid along our coast was in 1879, when the Balignini murdered or carried off sixty-five people, Bajaus mostly ; as late as 1881 they conducted raids elsewhere ; but all this sort of thing has now, it is hoped, been put a complete stop to from all the coast under our control. Many of those who used to be leading pirates have now quietly settled down to agricultural pursuits. The Illanuns are a race who inhabit the south side of the Island of Magindanao. Long ago their warfare against the Spaniards degenerated into general piracy ; their usual practice was not to take captives, but to murder all on board any boat they took. Those with us have all settled down to a more orderly way of life now, however. The Sooloos are a people inhabiting, principally, the Island of Sugh, in the Sooloo Archipelago ; mostly lazy, independent and turbulent, they are not regarded with great favour by anybody, but brave, restless, and fierce, they made the best and almost the only traders in face of the numerous dangers that beset both sea and land to within the last few years, and many of them are settled down in every village along our coast line. Their ancestry is very mixed, there being a large infusion of both Arab and Chinese blood in their veins. A good many of the Sooloos are not bad fellows in their way when you come to know them.

Most of these Sooloos, Illanuns, Bugis, and other coast people, the Bajaus excepted, are well behaved, courteous, intelligent, and even companionable. Leaving the coast, and before reaching the true tribes of the interior, there are generally some villages inhabited by a mixture of races, descendants of people from the interior, and of Sooloos, Bajaus, Malays, and others. These people, in some places known as the Doompas, used to oppress the natives on the one hand, exacting tithes of their produce, forcing sales of goods upon them at exorbitant prices, &c., while on the other they used either to stop traders ascending the rivers altogether, or to extort heavy tolls from them for permission to pass. The establishment of a firm government in North Borneo put an end to most of these irregularities some time ago. The first true tribe of the interior arrived

at from the east coast is the Boolloodoopy. The Boolloodoopies are a somewhat singular people, many of them having strangely Caucasian features, or at all events departing largely from the ordinary Mongolian type. Some of them have well-raised bridges to their noses, and very round eyes. These peculiarities have been enlarged upon by a French savant, Dr. Montano, who visited North Borneo in 1880. The Boolloodoopies are not very bold, and as the richest of the birds' nest caves occurs in their country, they have had to oppose cunning to the straightforward exactions made upon them from time to time by Sooloo and other rapacious adventurers. The Eraans in Darvel Bay are closely connected with the Boolloodoopies, and like them are large owners of birds'-nest caves. At various times both these tribes have sought the society of Sooloo Datos, as a barrier against their fellow Datos, and a protection against the marauders who used to infest the country both by sea and land ; and in many places there is a large infusion of Sooloo blood in consequence. In Darvel Bay there are the remnants of a tribe which seems to have been much more plentiful in bygone days—the Sabahans. Most of them are so mixed with the Eraans as to be almost indistinguishable. Some of them, however, still have villages apart, remain heathens in their religion, and would practice their old customs, human sacrifice included, if allowed. In some of the birds' nest caves, mouldering coffins are to be seen, rudely carved with grotesque figures, said to have been deposited there in bygone days by the old Sabahans. Many of these coffins are on ledges of rock at considerable elevations. Next above the Boolloodoopies are the Tunbunwhas, or the first sub-division of the main tribe or people known as the Dusuns or Sundryaks, who constitute the chief portion of the population of British North Borneo. No completely satisfactory account of the Dusuns, or of the true Dyaks either, appears to have been yet written. The latter are spoken of as the aborigines of Borneo, but even in them there seems to be a great similarity in many matters to Chinese, while the Dusuns would seem to be of nearly half Chinese ancestry. The idea that Chinese men and women came over in bodies and settled down in numbers at a time in North Borneo, is perhaps not so probable as

that, long ago, when a large trade was being done between Borneo and China, many Chinese, traders, shopkeepers sailors, and the like, married women of the country, and settled down—this sort of thing is, in fact, going on even in this day—thus effecting a slow infiltration of Chinese blood, though not of Chinese speech or manners generally: though it is believed that in one or two places on the west coast Chinese is spoken and written, and Chinese customs are practised. In many places the modes of agriculture adopted by the Dusuns are far superior to anything of the kind anywhere else in Borneo, and are supposed to be due to Chinese influence. Ploughs, winnowing machines, and other appliances used by them are to be seen in the North Borneo Court, sent over by Mr. Dalrymple from the Putatan district on the west coast.

Difficult as it is to tell how far the Dusuns owe their ancestry to Chinese, it is still more so to say where the Dusun ends and the Dyak proper begins. Many of the Dusun men in the interior wear the chawat, and the women brass waistbelts and gauntlets, just the same as the Dyaks, while nearly all the Dusuns have the same fancy for old jars, and most of them a modification of the head hunting customs of the true Dyaks. This veneration for old jars is obtained without doubt from the Chinese. Is this any indication that Dyak ancestry also is partly Chinese? The taste for brass ornaments is very similar, although in an exaggerated form, to that of the Foochow Chinese. The sumpitan, or blow-pipe, is one of the principal weapons of the Dusuns; the darts are tipped with poison. The coast people and Booloodoopies and most of the Tunbunwhas are Mahomedans, but the tribes more in the centre of the country are heathens, Kaffirs as the Mahomedans call them. Their belief is that after death they all have to ascend Kina Balu, which the good ones find little difficulty in accomplishing, and are thence ushered into heaven, while the wicked ones are left unsuccessfully trying to struggle and scramble up the rocky sides of the mountain. The Tunbunwhas and other Dusun tribes are greatly guided in their movements and operations by omens and dreams, good birds and bad birds, and so forth, and have

superstitions in connection with a good many things. Though not such ardent head hunters as the true Dyaks, still the Dusuns of the interior and west coast used to indulge a good deal in this practice. Only a few years ago many houses on the west coast were ornamented with heads hung up round them, and in the interior blood feuds between villages frequently occasioned head hunting raids from one to the other. The men that took heads generally had a tattoo mark for each one on the arm, and were looked upon as very brave, though as a rule the heads were obtained in the most cowardly way possible, a woman or child's being just as good as a man's. The true head hunters were most formidable neighbours; there are none in the territory, as they all reside to the southwards. The possession of a head appears to be a certain method of ingratiating oneself with the fair sex. During the famine in Sooloo in 1879 a great many slaves and captives were taken over to Booloongan and there sold, and in most cases the purchasers cut off their heads for that reason. The number of slaves and kidnapped people so taken over was estimated at 4,000.

Dancing is too universal a custom of the Dusuns and Sundryaks not to be mentioned. They will always on the slightest inducement get up a "main boloogsi," as it is called, while in times of abundant harvests, dancing is going on all night long, night after night, in every village or cluster of houses. The dance is a very primitive one; a large ring is formed of men and women holding each others' hands, the men together and the women together, and they circle round and round with a sort of slow sliding step, singing or chanting in a somewhat weird monotonous way as they do so. The Bajaus have the "main boloogsi" also; in their case the women form an inner ring and the men an outer one round a pole, and circle round it in opposite directions, and whereas the Dusun dance goes on slowly all night long till daybreak, the Bajaus get excited, and sing and dance faster and faster, bounding round the pole, till at last they are all exhausted. The most objectionable custom practised by the Dusuns was that of human sacrifice, or "surmungup," as they called it. The ostensible reason seems to have

been to send messages to dead relatives, and to this end they used to get a slave, usually one bought for the purpose, tie him up and bind him round with cloth, and then after some preliminary dancing and singing, one after another they would stick a spear a little way—an inch or so—into his body, each one sending a message to his deceased friend as he did so. There was even more difficulty in getting them to abandon this custom than there was to leave off head hunting. Down in the south-east the way of managing “surmungups” is for several natives to subscribe till the price of a slave is raised ; he is then brought, tied up, and all the subscribers, grasping simultaneously a long spear, thrust it through him at once (this custom still exists down in Tidong and the neighbourhood). The tribes near the coast usually live in separate houses, two or three families in each house, though even amongst them six or eight families will sometimes be together ; but in the interior twenty or more families will live under one roof, in what is known as a “benatong” or long house, each family having its separate apartments, the doors opening on to a sort of covered corridor. All these houses are well raised off the ground on poles, in the Malay fashion. In the interior amongst the heathens, the space underneath the house is frequently utilised as pigstyes.

Some of the things these people buy are most expensive ; sixty and seventy dollars is frequently given for a single sarong. Men of industrious habits can easily be overburdened with the quantity of goods they can acquire. Up the Labuk, where large earthenware jars are what the people most covet, some of the family residences are crammed full, top and bottom, and hung up to the roof with these rather cumbrous evidences of wealth. It may be said generally that whatever they want they buy, irrespective of cost, from a bundle of tobacco to a gold-hilted creese. Amongst most of the tribes brass ware of various kinds used to be much valued, a great deal on account of the facility with which it could be hidden in the forest, or even in mud at the bottom of rivers. In the old days keeping any visible wealth was a sort of challenge, and consequently people as they bought things used to

hide them away. The whereabouts of many of these deposits have been lost, and it not unfrequently happens that produce-collecting parties in the forest stumble across a lot of brass cannon, old gongs, &c. One of the customs of the Tunbunwhas worth mentioning is that of embalming the dead. This is done with the valuable Barus camphor, abundant in the woods in their neighbourhood, more particularly on the Kina Batangan ; it is worth some 60s. or 80s. a pound ; the coffins, in which they bury their dead, are hewn out of a solid piece of billian (iron-wood), and are of considerable value. On the west coast the population is thicker, the produce has been mostly cleared off, and the people have to give a much more steady attention to agriculture, and undertake various manufactures themselves. As we come over to the east coast the people are lazier, undertake little agriculture and less manufacture. On the coast line, however, the Bajaus and Sooloos make a few things. There is a curious resemblance between the sarong and the Scotch kilt, and in the manner they are worn, and an even closer one in their designs ; the plaid of some of the commoner sarongs is said to be the Bruce tartan, while many others, it is said, are of the Stuart pattern.

Mention is made by Mr. Dalrymple of a tribe distinct from the Dusuns, known as the Tagaas, who inhabit some of the mountains of the west coast, and who he seems to think are the descendants of some old and distinct race.

From the above remarks it will be gathered that the main race inhabiting British North Borneo, the Dusuns, are in all probability descendants of a mixed aboriginal and Chinese ancestry, and that as we come nearer to the coasts the sub-tribes mix and blend with each other and with aliens, till on the east coast there is very little of the native type left at all, a race rapidly springing up there of very cosmopolitan origin. On the west coast there are more natives and fewer aliens, but much the same thing is occurring there on a smaller scale. The Dusuns in character are quiet and orderly, and not particularly brave, and no doubt would be industrious if occasion arose ; a very good rural population, with somewhat rustic notions. Any slight

bloodthirsty tendencies, to which circumstances and the want of proper restraint have driven them, are gladly abandoned wherever the Company's influence has spread. They show every symptom of thriving and increasing, under a proper firm Government, and there is no fear of their melting away and disappearing like so many races have done when brought into contact with the white man. Much the same thing may be said of the sea coast races, who also possess many good workaday knockabout qualities, but not to the same extent as the Dusuns. Of these, the Bajaus are probably doing the best in some districts, Sandakan particularly, as they bring their great strength to bear on fairly rough work, are increasing and multiplying rapidly, and are even beginning to build houses. The Sooloos are the principal fishermen, and take not a small share of the trade amongst the islands, while all are glad to seize the opportunity of living quieter and more secure, if less adventurous, lives than they used to do in the old days. At first there was a slight difficulty in persuading some of them to settle down to a more orderly state of things ; but for long past matters have been going on smoothly and quietly, except in some of the quite outlying districts ; while it is not an uncommon thing to see large bodies of people—men, women, and children—from other parts, generally under some grave and peace-loving chief, come sailing into our waters to settle under our flag.

CHAPTER IV.—CLIMATE, METEOROLOGY, ETC.

The following careful Report by Dr. James Walker A.M., M.D., the principal medical officer, gives the fullest information under the above heads.

Preliminary.

The climate of British North Borneo is noticeable for nothing more than for its equability and the absence of extremes. The temperature, rainfall, winds, natural phenomena generally, and the diseases, are, for a tropical country, of the most mild and temperate types.

(2) In studying the climate it will be convenient to take in detail the following headings, viz., (1) Monsoons and winds ; (2) Rainfall (3) Temperature ; (4) Peculiar natural phenomena ; (5) Effects on health generally of the climate ; (6) Prevalent climatic diseases ; (7) Diseases not due to the climate ; (8) Epidemic diseases ; (9) Health of different nationalities ; (10) Sanitary precautions ; (11) Sanitaria.

(3) It may be noted here that the paper is chiefly founded on observations made at Sandakan, supplemented by occasional visits to Silam and Kudat, and by reports from these and other out-stations.

§ 1. *Monsoons and Winds.*

The monsoons are the north-east and the south-west.

The north-east monsoon commences about the middle of October and continues till about the middle of April. During the greater part of this time the wind blows steadily and with moderate strength from the north and east. In the course of this monsoon, more particularly in December and January, there are generally one, two, or three moderate steady gales, lasting for from three to nine days. At other times the wind is a moderate breeze from about 11 A.M., getting rather stronger towards evening, and

dying away in the early morning, when it may be overcome by a gentle land breeze. At the beginning and end of the monsoon the wind is not so strong or so steady, and the land breeze continues till later in the forenoon.

(2) The south-west monsoon lasts from about the middle of April till the middle of October. The wind, as a rule, is not so strong in this monsoon, the land-breeze in the morning better marked, and the gales not so strong nor so long continued as in the north-east monsoon. On the other hand, there are frequently squalls in the afternoon and evening, lasting for an hour or two, and sometimes blowing with the strength of a fresh gale. Neither in this monsoon, nor in the north-east, does the wind rise to the strength of a storm or even of a whole gale.

(3) No regular record of barometric pressure has been kept, but Mr. Flint, who kept a barometer for some time at Kudat, tells me it generally stood at from 29·80 to 29·90.

§ 2. *Rainfall, Etc.*

The annual rainfall near the coast, according to the records kept, has during the last seven years ranged from 156·9 to 101·26, and has averaged 124·34.

(2) The true wet season occurs in the north-east monsoon, and includes the months of November, December, and January, and generally part of either October, February, or both. During this wet season the greater part of the rain falls as general rain from a uniform dull grey sky, and is pretty equally distributed between day and night. This wet season does not, however, come up to what seems to be commonly understood at home by that expression—of incessant rain for weeks or months. I have never known the rain to continue without interruption for more than forty-eight hours; and in an average year there are not more than six or eight days on which rain falls for the whole twenty-four hours. During the wettest month recorded in Sandakan (January, 1882), there were eleven days without any rain at all. The heaviest uninterrupted falls of rain registered in the wet season are 7·90 inches in fourteen hours on January, 1884, and 9 inches in twenty-four hours in January, 1886.

(3) The true dry season immediately follows this true wet season, and includes March and April, and generally the whole of May and part of February. During this time, any rain that falls generally occurs in showers during the night and early morning. There has been no month without several showers, and even in 1885, when there was an exceptionally severe drought both here and in the Straits, during March and April, there was rain on six days in March and on ten in April, while during these two months of the most severe drought yet experienced here there was a rainfall of 1·35 inches. During March, in that year, there was no measurable rain for twenty-two days in succession—by far the longest period on record. It may be noted here that the drought during the months of March and April has been more severe than formerly during 1884, 1885, and 1886, and that some are inclined to ascribe this to the extensive jungle felling and clearing. That this was not the real cause of the severe drought last year is at once evident from the fact that the drought was general and not local; but on the other hand it must be admitted that were the jungle cutting of sufficient extent to influence the rainfall in any way, its effect would first be felt on the localised showers of which the rainfall during these months is mainly composed.

(4) This true dry season is followed by a period of moderate rainfall, commencing generally about June. The first month or six weeks of this period almost deserves to be called a second wet season, and the rest of the period up to the commencement of the true wet season might be described as the second dry season. As, however, the boundaries of these two are ill-defined, their characters similar, and the difference in rainfall comparatively small, I think it is better to consider them together, as a sort of intermediate season. During this period the rain falls chiefly in heavy squalls (either with thunder or from thundery-looking clouds), occurring most frequently in the afternoon and evening, but not confined to that time; and it is during these rain-squalls that the heaviest falls of rain occur, such, e.g., as that on the 15th June, 1884, when 2·05 inches of rain fell in forty minutes (accurately timed and measured). For the actual amount of rainfall during

the various months, detailed accounts are given in the tables in the Appendix.

(5.) As already stated in the Preface, these remarks are founded chiefly on observations at Sandakan. On the west coast the rainfall is similarly arranged, with the exception that popular report, supported to a certain extent by the few returns I have for comparison from that district, places the various seasons there about a month earlier than on the east coast.

(6.) The water-supply of the country is so intimately connected with the rainfall that a few lines may appropriately be given to it here. The rain does not collect in lakes or pools, but quickly disappears, either carried off by the free surface drainage of the country, or absorbed by the porous soil. Thus the supply of fresh water must be got from streams, springs, wells, or artificial reservoirs. As the soil is generally absorbent, and retains the moisture, there will probably be little difficulty in this matter, either in the interior, or in such places as Sandakan, Silam, or Gaya, where there are hills near the coast. In some places near the coast, however, there will be difficulties, as the rivers are for miles there salt-water lagoons, while the deltas are flat stretches of alluvial soil, raised only a few feet above sea-level, with a substratum of clay, at a depth of a few feet, and below that again a bed of decomposed mangrove wood, &c. In such places the water-supply during the dry season has hitherto been very unsatisfactory as regards both quantity and quality, and consisting either of water from the surface wells down to the clay, or still worse of water impregnated with the organic matter from the decomposing bed of mangrove below. It will probably be found in the future that in many such places a satisfactory supply can be obtained by Artesian wells penetrating to the underlying rock, which will probably prove to be either limestone or sandstone.

(7.) Under this heading may be mentioned also the heavy mists that frequently occur in the rivers during the night, and that are not dissipated till they get the full force of the sun from 8 to 10 A.M.

§ 3. *Temperature.*

The temperature recorded at the coast has ranged between the extremes of $67^{\circ}5$ and $94^{\circ}5$. Until within the last few months, however, these records have been taken from thermometers kept in the shade of a verandah—with the exception of Kudat, where there was a thermometer-shade two years since; but little or no inferences can be drawn from the records there, as the meteorological station is on a sandy plain, the temperature of which was several degrees above that of the country generally. Judging from the results of the observations at Sandakan since the proper shade was erected, I think the minimum records fairly well represent the truth, while the maximum records are from two to three degrees over the true “temperature in the shade.”

(2.) On reference to the tables and charts in the Appendix, it will be seen that the difference in temperature between different seasons of the year is very slight. The lowest average temperature for both maximum and minimum registers is during the wet season in December and January; the highest average temperature during the night (minimum) occurs during the dry season in April and May, whilst the highest average temperature during the day (maximum) is in August and September. The lowest actual temperatures are generally recorded during the rain-squalls of June and July during the evening or early part of the night; but as a rule the lowest temperature is reached about 2 A.M. The range of maximum temperature for the month is only from $80^{\circ}88$ in February, 1879, to $92^{\circ}65$ in April, 1885; while the range for the monthly mean minimum temperature is still smaller from $71^{\circ}46$ in December, 1883, to $78^{\circ}0$ in April, 1883 (Kudat.)

(3.) With regard to the other stations, compared to Sandakan, it may be said that Kudat is on the whole one or two degrees warmer, while the stations near Papar, being influenced by the cold winds from the hills, are several degrees colder. Silam also is probably colder than Sandakan at night. In the hills of the interior the temperature

falls much below the figures given above ; and it is probable that freezing-point is occasionally reached near the top of Kinabalu : the lowest recorded temperature I have found is 36°5, recorded by St. John, in his 'Life in the Forests of the Far East.'*

§ 4. *Peculiar Natural Phenomena.*

On this subject there is little to be said, more particularly as no accurate records have been kept. The absence of tornadoes, cyclones and earthquakes is to be noted. The only indication of the existence at the present day of any volcanic action is the report of a hot spring near the coast.

(2.) The peculiar phenomena of tropical climates generally are found here ; thunderstorms with much sheet-lightning are frequent during the months from July to September, and are sometimes severe. Mirage is generally present in the afternoons to a slight extent. Phosphorescence occurs to great perfection in Sandakan Bay ; and I have heard more than one ship-captain say they have seen it better here than in any other locality. Of other meteorological phenomena nothing need be said, as the mere mention of their existence in the absence of any accurate records would be of no value.

§ 5. *General Effects on Health.*

On this subject we have as yet far too meagre materials to ground definite opinions on ; and it is difficult to formulate the impressions one forms in the absence of absolutely complete records with sufficient clearness, and at the same time avoid appearing to be dogmatic on insufficient premises.

(2.) The impression I have formed of the salubrity of the climate generally is, that it compares not unfavourably in that respect with other tropical climates, such as that of the Straits, &c. Diseases seem generally of a mild type and amenable to treatment ; and although here, as in all tropical countries, those making new clearings in the jungle

* The clear atmosphere and free evaporation prevents the temperature recorded from being oppressive.

are liable to sickness, yet the immense improvement recently of the two stations that, at the time they were opened, were looked on as exceptionally unhealthy (Silam and Kudat) gives good grounds for hope that the sickness of newly-opened clearings will not last for very long. The places where such sickness is likely to continue longest is in the deltas of the larger rivers—in which most of the planting experiments have hitherto been made—as there, in addition to the unhealthiness of a newly-opened clearing, there are to be contended with the difficulties in the water-supply, and the sickness caused by the mangrove swamps in the neighbourhood and by the heavy river mists.

(3.) The death-rate cannot be stated with any certainty. The register of deaths for Sandakan for 1885 may be relied on as tolerably complete, as registration of births and deaths has since 1885 been compulsory there. Previous to that a register was kept, and was made as complete as possible ; but there was no penalty for neglecting to report a death, and the result was that only two-thirds of them were ever heard of. The deaths registered in the Sandakan district—including Sandakan itself, and the surrounding country within a radius of about three miles, within which there are three native villages—amounted to 129 ; and, as the population of that area may be safely put at over 4,500, this would give a death-rate of 28·6, or say, to allow for deaths not registered, 30 per thousand. Comparing Sandakan with the country generally, and remembering on the one hand that Sandakan is the oldest and, independently of that, one of the healthiest stations, and on the other that there the proportion of the unhealthy race (Chinese) who contribute more than one-half of the whole deaths registered is much larger than in other parts of the country, and that a considerable proportion of the deaths registered in Sandakan (about ten per cent) is due to sickness contracted in the rivers of the bay, it will, I think, be a fair estimate to consider the Sandakan death-rate as tolerably well representing that of the country generally. I am at any rate certain I am within the mark in saying that the death-rate of the country does not exceed thirty-five per thousand per annum.

As regards the influence on health of the different forces

that go to make up the climate, it is as yet impossible to make any general conclusions. It is even impossible to say, for the country as a whole, which monsoon or which season of the year is the most unhealthy. In some individual parts the south-west monsoon is by far the most unhealthy, and this is especially noticeable at Kudat and Silam, where, during the south-west monsoon, fever is prevalent and rather severe, while during the north-east it is mild, and at Kudat now almost absent. At these stations the evil influence in the south-west monsoon is undoubtedly the stronger winds, which, blowing over the whole of Borneo, reach these places laden with the impurities collected from swamps, &c., in their passage, while Sandakan is protected from this influence by the purifying effects of the bay, over which the south-west winds have to sweep for a distance of some fifteen miles before reaching the town; and consequently at that station there are no clearly-defined "healthy" and "unhealthy" seasons, as at the two others mentioned. The only other well-marked influences for evil in the climate are, (*a*) In certain places diminution in the quantity and deterioration in the quality of the water during the dry season; (*β*) Impurities in the water in places deriving their water-supply from streams on the first commencement of rains after a drought; this influence is most felt in June, after the true dry season. (*γ*) The effect of the floods that every year cover large areas near the rivers is distinctly to increase the tendency to fever and allied diseases among the inhabitants of the neighbourhood. (*δ*) The heavy river mists aid in the production of fever, asthma and phthisis. Beyond this all is mere vague impressions, the most definite of which is that there is an increase of sickness, especially of the respiratory system, and malarial diseases, about the change of the monsoon. It may be specially pointed out that the unhealthy season of India, the so-called "cold" season, does not exist in North Borneo.

§ 6. *Prevalent Climatic Diseases.*

The chief diseases to be considered under this head are fever, beriberi, and dysentery. In addition to these a few lines will be given to anæmia and sunstroke.

(2.) Fever forms rather more than a quarter of the cases treated in the Government dispensaries and hospitals (25·248 per cent.). It must be remembered, however, that a considerable proportion of the cases enumerated under that name are not malarial, but simple continued fever, or febricula. As many of the cases come only once to the dispensary for a supply of medicine, and that after a single slight feverish attack, it is impossible to draw a hard-and-fast line between the two classes, or to give the exact proportion ; but I think that at least a third of the cases of "fever" belong to this milder type. Of malarial fever the type is generally a mild intermittent quotidian fever, which yields readily to treatment. Remittent fever is seldom seen, and only in some very unhealthy rivers, or in the case of Chinese, who have not defæcated for from six to ten days. The malignant type of "jungle fever," sometimes seen in the native states and elsewhere, I have not encountered in North Borneo. There are certain local differences in type which deserve notice : thus, at Sandakan the type is as described above, and with a tendency to leave behind it muscular pains (pseudorheumatic) greatly in excess of what would be expected from the mildness of the attack. At Silam the fever, after the first ten days or a fortnight, almost invariably assumes the Tertian, Quartan, or Quintan type, and is more intractable, while from almost the commencement it yields more readily to arsenic than to quinine. At Kudat the local characteristic is the severity of the bilious vomiting that generally occurs during the first few days of an attack of fever during the strong winds of the south-west monsoon, and the nervous depression and headache that ushers in the attack ; while at the new district of Padas, if I may judge from the few cases among the police who have been sent to Sandakan for treatment, the permanent effects on the spleen are much more severe than in the other stations.

(3.) Beriberi occupies an important position in the list of diseases of Borneo, partly on account of the high rate of mortality it gives, and partly on account of the extent to which it has already interfered with planting. It has broken out in each of the plantations opened on the rivers in Sandakan Bay, and has claimed its quota of victims not only in these — Segaliud, Domoondong

Suanlamba, and to a less extent, Sapogaya—but also in the native village of Melapi, at the birds' nest caves at Gomanton, among some of the parties of Dyaks collecting produce on the upper waters of the Segama, and to some extent on the Island of Banguay. This disease generally appears almost in the form of an epidemic, and is generally closely restricted both to the locality and the race among whom it at first appears. The cases enumerated in the Appendix* were chiefly drawn from the various rivers in the bay (patients sent to Sandakan for treatment), but include also a few sporadic cases that appeared in the low-lying ground in Sandakan, and a few cases in the commencement of a recent outbreak in the old gaol here. The cause of this obscure disease is as yet uncertain; some ascribe it to the food, more especially to bad rice and fish, and there is no doubt that a generous diet has a strong curative influence in the disease; but on the whole, from its many analogies with malarial fever, and the strict localisation of the disease, I am more inclined to the view that it is due to a specific miasm or exhalation from the soil. There are two distinct forms of the disease, and I think it not improbable that these may ultimately prove to be distinct diseases. (a) The wet, or dropsical, form is the more common and dangerous. It frequently commences with a short attack of intermittent fever, at other times with only slight malaise. The first two distinctive symptoms are œdema of the feet, and diminished sensibility of skin of the front of the leg and dorsum of the foot, "as if there were a sheet of paper over it." (The diminution in the sensibility of the skin around the mouth mentioned by some writers I have not found common here.) These two symptoms may occur simultaneously, or either of them may appear some days before the other. They are soon followed by a feeling of heaviness of the feet, loss of power of the muscles of the front of the legs, and consequent toe-drop and characteristic walk, and spasm and tenderness on deep pressure of the muscles of the calves and back of the thighs. Soon the œdema extends, the paralysis of the legs increases, and the red corpuscles of the blood get disintegrated, but there are no hæmorrhages, no albuminuria. At this stage the deep

* Not published.

reflexes do not seem to be affected, and there is no spinal tenderness. Soon there occurs general dropsy, with prae-cordial uneasiness, and effusion into the pericardium, pleura, or peritoneum, and sometimes marked œdema of the scrotum, which is to be looked on as a bad symptom. At this stage attacks of diarrhoea occur, but the appetite remains good throughout. In the fatal cases death generally occurs from sudden effusion into the pericardium, or from atrophy and degeneration of the heart, or from simple exhaustion. Recovery is generally protracted, and meanwhile the patient is liable to relapses, or to sudden death, from failure of the weakened heart, on any sudden change of temperature or unusual exertion, or simply from overloading the stomach. The so-called malignant form seems to be merely a subdivision of this form, in which, without premonitory or other initial symptoms, there is sudden effusion into the pericardium, and death. (β) The dry form is characterised by motor paralysis of the legs, and also at a later stage of the arms, and in extremely severe cases, the muscles of the larynx, causing the voice to become a husky treble ; diminution or loss of tendon reflex, and no marked loss of sensibility. In the early stage there is generally found to be tenderness on firm percussion over the fourth, fifth, or sixth dorsal vertebra, and a blister over this spot, followed by full doses of strychnine, arsenic and iron, occasionally results in speedy cure. The result in this form is generally protracted recovery, and death, when it does occur, is usually due to the supervention of the dropsical form.

(4) Dysentery is not prevalent, and where it does occur the acute form is always, so far as I have seen, mild and amenable to treatment. Even chronic dysentery generally yields to careful treatment, and has proved dangerous only when it has existed for a long time without any treatment, or when complicated by opium-smoking. There have been two slight outbreaks of dysentery in the gaol at Sandakan, but neither of them caused any deaths.

(5.) Anæmia occurs here from various causes. Europeans frequently suffer from it to a slight extent when they first arrive. Chinese also suffer from it when they come here direct from China, and in their case it is sometimes

more severe, and occasionally causes death. Among Chinese wood-cutters I have seen some very severe cases of anæmia accompanied by severe ulcers. It frequently follows fever. Among the Dyak produce collectors in their long journeys up the river of Borneo it also occurs, probably in consequence of deficiency in their food, and takes the form of incipient scurvy. I have also seen two cases of severe anæmia produced by epistaxis, and one of these proved fatal.

(6.) Sunstroke does not occur frequently. I have seen only one case in a European (quite recently), and this has passed off without bad results. The cases in the Appendix occurred to natives and Chinese; and in addition to these it is probable that some of the cases of "found dead" were due to this cause.

§ 7. *Diseases not due to Climate.*

Reference to the "Analysis of Cases of Disease" in the Appendix* will show the comparative frequency of the different classes of disease. Diseases of the respiratory system are only a small percentage (5·51), and are chiefly simple catarrhal attacks of the nose and larynx, and occasionally mild bronchial affections. Phthisis is not common, and is generally a sequence of the bronchial asthma caused among the natives by the river mists. Heart-disease also is infrequent, and is generally a sequence of fever or beriberi. Rheumatism, in the form of muscular rheumatism, occurs frequently, but rheumatism affecting the joints is rare, and generally gonorrhœal in origin. I have not seen a single case of acute rheumatism in Borneo. Diseases of the alimentary system form a large percentage of the cases (26·77), but are chiefly functional,—constipation, diarrhœa, atonic dyspepsia—and occasionally slight gastric catarrh. Disorders of the liver are also chiefly functional, but include a few cases of congestion from exposure to the sun, &c., and a few cases of hepatitis. Diseases of the genito-urinary system form only 3·46 per cent. of the whole; and of these venereal diseases form more than half. Venereal disease was almost, if not quite, unknown

* Not published.

among the natives previous to the arrival of the white men among them ; at the present time gonorrhœa is the only disease prevalent, only some five or six cases of fœcal-contagious sores having been seen, and only one Hunterian chancre (introduced from Labuan by a Sikh). Gonorrhœa in the natives is very easily cured ; while in the Europeans, and to a less extent in the Chinese, the relaxing climate tends to make it have a tedious course. The natives are subject to a rather severe form of idiopathic orchitis. Diseases of the nervous system and organs of sense form 3·96 per cent. of all the diseases seen : they consist chiefly of neuralgia, conjunctivitis, and ear-ache ; in addition to these, two cases of cerebral apoplexy, three or four of epilepsy, some six of insanity (Chinese and Arabs), two of cataract, and a few of otorrhœa make up the greater part of the remaining cases. Skin diseases form 8·40 per cent., and include a little over 2 per cent. of itch, chiefly among the Chinese, and 4·7 per cent. of ringworm (principally imbricata), which is found chiefly among the natives, but occurs in all races. *Pityriasis versicolor* is common among the natives, but as it has the effect of making their skin more white than natural, they do not as a rule object to it, or wish to have it cured. Abscesses, boils and ulcers form 9·380 per cent. of the diseases ; the ulcers are generally either irritable or indolent ulcers, sometimes sloughing ulcers occur also among the Chinese ; besides which there are many cases of simple ulcers due to neglected injuries got in jungle clearing. I have seen only two cases of lupus (one this year, not given in the table), and these are the only approach to cancerous disease I have seen. The diseases of joints were chiefly simple synovitis. The cases of bites, stings, &c., include only two fatal cases, both children of about 7 to 10 years of age stung by jelly-fish ; also two cases of slight bites by crocodiles ; the others are stings by poisonous fish or scorpions, and centipede bites. The "other injuries" include two cases of rupture of the urethra by falls, one of fracture of the spine, about twenty fractures and dislocations, gunshot wounds, six to eight kris or spear wounds : the other cases various minor injuries.

§ 8. *Epidemics.*

The only epidemic diseases that are known to have appeared in North Borneo are small-pox and cholera.

(2.) Small-pox seems to have spread through the whole territory some fifteen years ago, and at that time did immense damage, clearing off whole villages and depopulating extensive tracts of country: it is said, in fact, to have carried off fully one-half of the population. Again, in 1883, two cases were imported from Hong Kong to Kudat, but the prompt action of Mr. Wheatley, the then medical officer of the West Coast, prevented the disease from spreading farther.

(3.) Cholera was brought to the country in the first half of 1882, being first brought by a native prahu to a village at the mouth of the Labuk river, and from that to Sandakan—there was also a suspicion of independent infection brought from Sooloo to Sandakan by one of the steamers about the same time—and from these two centres spread over nearly the whole of the coast, and on the west coast penetrated to the interior, and carried off a little over a thousand victims. This disease is said to have previously visited the west coast about the same time as the small-pox outbreak; but it does not seem to have previously visited the east coast, as the natives had no name for it, and simply called it “The New Disease.”

(4.) As to the means of defending ourselves from similar outbreaks in future, we can to a considerable extent defend ourselves against infection from a distance, by quarantine and inspection of steamers, &c.—the London quarantine regulations have been adopted here, with a special clause providing for absolute quarantine at stations where there is no medical officer—but against infection from our immediate neighbours in Sooloo and Dutch Borneo, &c., we are practically helpless, in consequence of the frequent communication by native boats between these places and native villages here, where there is no one to take the necessary precautions.

(5.) Vaccination is being carried on as well as possible

in the face of considerable difficulties. The Bruneis and Malays are the only races that willingly aid in this ; the Chinese are anxious for vaccination for themselves and children, but have a strong prejudice against supplying lymph for the vaccination of others ; the Sooloos are generally apathetic on the subject, while the inland tribes identify vaccination with inoculation, and in most cases strongly object to it.

§ 9.—*Nationalities and Disease.*

On Europeans the climate has, with proper precaution, an enervating but not a dangerous effect. During the seven years that the Provisional Association and the Company have held sway here, only two Europeans have fallen victims in the country to disease that could fairly be ascribed to the climate. One succumbed to dysentery, at an out-station where he had none of the medicine necessary for the treatment of that disease ; and the other, to a neglected attack of fever contracted in opening a new clearing. In addition to this, one infant died of bronchitis ; one sea-captain, who had been specially ordered never to return to a tropical climate, died of fever in Kudat harbour ; and three died after being invalided from here, but all of these were bad lives before coming here. Of these three one died of phthisis, in consequence of which he had to leave England several years before ; and the other two who had been weakened by a long previous residence in tropical climates, and were in bad health when they came here, died, one of fever and chronic diarrhœa, and the other of fever and chronic dysentery. Eurasians have much the same relation to the climate as Europeans, and seem if anything rather more liable to fever, and less to the general depressing influence of the climate.

(2). The Indian races on the whole stand the climate well. The Sikhs and Bengalees have attacks of fever, colic, constipation, and occasionally slight dysentery, but there have been but few deaths among them ; one or two from fever, one from heart-disease, one from opium-smoking, one from chronic neglected dysentery, and one sudden death, cause

unknown. The Klings are also fairly healthy here, but like others have occasional attacks of fever, and in two cases beriberi. The Cingalese who were brought here for the Survey Department suffered severely from fever and its results.

(3). The Chinese are the only race that can be said to be decidedly unhealthy in this climate, and even of these this can be said only of those fresh from China, and sent to work in the jungle before they are acclimatised. Men such as these contribute more than half of all the deaths registered in Sandakan, succumbing chiefly to fever, beriberi, and anæmia, with ulcers.

(4). The Dyaks from Sarawak have excellent health in North Borneo. Even in the long journeys up country in search of produce, often lasting for six months or more, and during which they are exposed to all the evil influences of the climate, and are frequently badly off for food as regards both quantity and quality, although they occasionally suffer from attacks of fever and diarrhoea, few of them succumb; and even when beriberi breaks out among them it generally assumes the "dry" form, and the mortality is, for that disease, small. When acting as constables, being much better looked after and not exposed to the climate, they have almost no sickness except an occasional slight touch of muscular rheumatism, or a mild return of fever contracted in some of their previous journeys as produce collectors.

(5). The natives of the country suffer chiefly from fever, muscular rheumatism, ringworm (chiefly the imbricate form), and in some places spleen and asthma, and occasionally phthisis. A noticeable point with regard to the natives is the immense mortality among infants: nearly a fifth of the children born seem to die within twenty-four hours of their birth, while many more die within the first few weeks of life; and altogether fully one-half, I think, die during the first year. The natives look on this as all in the proper course of nature, and though anxious to have children never think of applying for medical aid for the ailments of such young children. I have consequently no exact details of the causes of death in these cases, but gather that they are chiefly improper management at birth,

and fits and bowel complaints from improper feeding. The women get over their confinement easily, and I have heard of only one death in child-bed of a native woman here—a very exceptional case, in which a woman at one birth produced four children alive, and died with a fifth still unborn.

§ 10.—*Sanitary Precautions.*

The sanitary precautions to be observed here are the same as in all countries in the tropics, and need be only glanced at rapidly. The most important are, temperance and regularity in food and drink, and attention to the excretions; daily bathing, regular exercise, careful avoidance of unnecessary exposure to the sun by day (especially if exhausted from any cause), or to sudden chills or malarious exhalations by night; and prompt attention to petty ailments at the very commencement.

(2). In selecting the site for a house or settlement the usual precautions must be taken; the site should be on a rising ground in the centre of a considerable clearing, and not in the immediate neighbourhood of swamps, or of any considerable extent of newly-felled jungle or of freshly-turned soil, nor in such a position that either of the prevalent winds blows directly from any of these towards the house, even from a considerable distance. Failing the possibility of these points, the house should be raised well above the ground (eight or ten feet) on piles; and in the unhealthy winds fires to windward are said to greatly neutralise the malarious influence. The supply of water should be taken if possible from springs, and failing that from deep wells; and when there is the least suspicion of the quality of the water, it should be well boiled before being filtered.

(3). Travelling in North Borneo on the rivers is usually done in the small native boats, and on such journeys a most important point is to overcome the difficulties in the way of getting regular exercise. Several of the Europeans who have travelled in the interior have got sick entirely in consequence of the neglect of this. In addition to this the usual well-known precautions must be taken: abundance

and good quality and variety in the supply of food, careful boiling of the water for drinking purposes, lighting fires to windward of the camp in malarious places, using a blanket at night, and taking some food before starting in the morning, having a proper supply of simple medicines, and *using them at once when they are required, &c.*

§ II.—Sanitaria.

In the future, when the country gets opened up, there will be comparatively little difficulty in forming sanitary stations on the hills near the west coast. Probably the best site will be found on some of the spurs of Kinabalu, such as that described by St. John on the west-north-west spur; where, at an elevation of some 5,000 to 6,000 feet, on a good site to which a road could easily be made, he found good water, and an average temperature of 75° at midday, 63° at sunset, and 56° at sunrise. At Bode Silam, also on the east coast, it is possible that a site may be found at an elevation of some 2,000 feet, but this would probably prove much less satisfactory, not only on account of the smaller elevation, but also because from the isolated nature of the hill there would probably be difficulties about road, water-supply, and shelter from the wind.

(2). At present, in default of such sanitarium, I find the short sea-voyage from this to Singapore and back has a most powerful recuperative effect in convalescence from sickness. The voyage to Hongkong is not found so satisfactory in such cases, as the transition of climate is too rapid; and though the distant effects may be good, the immediate effect is to stir up any seeds of fever and other disease that may be latent in the system and cause an outburst of the disease.

CHAPTER V.—TRADE AND PRODUCTS.

THE island of Borneo and the surrounding seas are exceptionally rich in natural products, many of which are as yet hardly, if at all, collected or utilized. The main reason why so little advantage of these resources has been taken hitherto is that matters have been in such a disorganised and anarchical state that it was impossible to store up the slightest wealth without some one more powerful than the possessor coming and seizing it, by force of arms if need be. It was useless therefore, until quite lately, for any one to attempt to do more than provide for his immediate wants ; and so much has this grown to be a habit, added to the natural laziness of the Malay character, that the bulk of the people simply have, even now, no thought for the morrow. A remarkable illustration of this is found in the undoubted fact that it has been known that Bajau boats having brought some "find" of a rather higher importance than usual to market, and bartered some of it for the only article to which they attach any value, rice, have afterwards thrown the greater part of the remainder into the sea, rather than be at the trouble of taking it about with them. It will thus be understood that the people of these parts have come to regard it as but a natural state of affairs that they should be surrounded by wild produce of a valuable character, which they have only to stretch out their arms to gather, and, in fact, as a sort of balance at their bankers, upon which they simply have to draw whenever the need arises.

SEA PRODUCE.

Bêche-de-mer ; scientific name, *Holothuria*, or Sea Cucumber ; Malay, *trepang* ; Bajau, *bart*. These repulsive-looking echinoderms occur in quantities all round the coast, and are collected principally by the Bajaus, or Sea Gipsies, who cure and dry them, and bring them to

market, where they are bought by Chinese traders, and sent ultimately to China, where they are much appreciated, being used principally to make soup. They vary considerably in price. Some of them have no value at all, and go uncollected; others fetch as much as \$25 a picul, but the usual price is from \$10 to \$15 per picul. Along the coast they are rather fully collected, but amongst the islands, and on the coast line down to the south there are immense quantities left undisturbed from year to year. The exports of this curious produce during the years 1882, 1883, and 1884, were valued at \$6,739, \$9,057, and \$7,373 respectively.

Keema is a large mollusc resembling an enormous cockle or clam. Their shells may occasionally be seen in museums in England, and are much used in France as vessels for Holy Water at the entrances to churches; these shells are sometimes found six feet in width, and the natives aver that they grow very much larger, and state that on the coast of Tawi-Tawi there is one as big "as a house." It may be mentioned however that fifteen feet broad for a Bajau house would be quite a respectable size. *Keema* is usually found on a coral bottom, and it requires the keen and practised eye of a Bajau to distinguish between them and the surrounding lumps of coral, &c.; they usually present the appearance of an indigo-blue streak, the partly opened mouth being all that is visible, the shell being too much covered by sea-weed, anemonies, &c., to be seen; and when the Bajau distinguishes one from amongst the quantities of other creatures and colours with which the bottom abounds, he thrusts a three-pronged spear into the aperture, whereupon the two shells close with a firm grasp, which enables the fisherman to bring it to the top without further trouble. The price of *Keema* is usually so low that it is despised by the gatherers, though however low the price might be, \$2 to \$3 a day could always be earned by collecting it. During the war between France and China, the prices of *Keema* rose considerably, owing probably to its being more easily prepared for culinary purposes than *trepang*, and therefore more adapted for soldiers on the march. There are places on the coast where boat-loads can be got in a very few days, and its

collection was being largely expanded when the end of the war came, and prices showed a disposition to fall.

Agar-agar, an edible sea weed, grows freely enough in many places at the bottom of the sea, and is to be had for the collecting.

Mother-of-pearl shell is the produce of a very large oyster, known locally as *tepai*. Beds of this oyster are found in the seas all the way from Borneo to Australia, more or less; they would seem to terminate however about Lat. 6, North. There is a tradition of a large bed being situated outside Balhalla, somewhere between the islands of Nunuyan and Taganac, and in confirmation of this report occasional single specimens have been obtained. A bed also exists, without much doubt, on the "René" shoal off Tambesan, but the mouth of Darvel Bay has to be crossed to the southwards before ground is reached where they are constantly found. Information apparently trustworthy has been received of an important bed extending from Port Elphinstone to some sixty miles to the southward, called the Ada Bank, so named after the wife of Mr. Pryer the Resident of the East Coast. Shells from this bank are sent in occasionally and some pearls are said to have been found. The price of shell is usually about \$45 a picul. Exports hitherto in this article have principally been composed of a few shells that have from time to time found their way over from the Sooloo islands to Sandakan.

Pearls. These are found in the above-mentioned mother-of-pearl, or *tepai*, oysters. Hitherto but very few have been found on the coast of British North Borneo, and those which are offered for sale in the market have come principally from the islands of Tawi-Tawi, Skobong, Ubian, &c., in the Sooloo Archipelago. Pearls of very high price are not unfrequently to be bought in Sandakan. The largest one that has been seen was valued at \$8,000. The diving powers of the people who bring up these shells are something extraordinary, and are probably not to be exceeded anywhere in the world; without any stone or weight they turn over on the surface of the water and swim down headforemost to the bottom, collect shells, and bring them up, each one weighing six or seven cattles.

In this manner they will descend to an ascertained depth of twelve fathoms, and claim to be able to go down much greater depths. In waters much infested by sharks, a sort of plough-shaped trawl, here called "badjer," is used.

Seed-pearls. These are found in a thin, flat, pinkish-shelled oyster, known locally as *selisiep*, which occurs usually in shallow water on the mud at the mouth of rivers. This oyster is somewhat peculiar in character; the water in which alone it can thrive must be slightly brackish, as it cannot live in entirely salt water, while on the other hand, an admixture of too much fresh water kills it at once. There used to be large beds of it in Sandakan and Lakuk Bays, but very heavy rains in the year 1879 so thoroughly destroyed the oysters that they had not properly recovered by the end of 1885. On several occasions it has been said that the oyster was beginning to be found again, and that minute pearls were forming in them, but rains always came at the critical moment and destroyed them. In Maroap Bay, a certain amount of collecting has been in progress for the past two years, and there are places in Darvel Bay where these oysters are abundant; but other natural produce, more easily collected, is so plentiful in its neighbourhood that they are never touched. Seed-pearl collecting is great fun. It is always necessary for several boats to rendezvous at the same time and place for the purpose of frightening away the crocodiles and sharks, and for the same reason as much shouting and splashing about as possible is indulged in. The consequence is that there are rarely less than from twenty to thirty persons in the water at one time, all diving, splashing, laughing and shouting at once, and rarely bringing up less than three to four shells at a dive, whilst extra yells from all hands salute a rather larger find than usual. The mode of obtaining the pearls is by opening the oysters and throwing their contents into some vessel, and there leaving them to decompose, stirring them up daily during the process, until at last, the liquid putridity being poured off, the pearls are found at the bottom. Very few of them are large enough to be of any value individually, but they are sent to China, where they are pounded up and made into powder, and there swallowed by ladies who desire to

improve their complexion ; at least such is the story. Another and rather larger kind of oyster, known as *beloong*, found in somewhat deeper water than *selisiep*, also always contains seed-pearls. Exports, 1882, \$71; 1883, \$106; and 1884, \$2,401.

Tortoise shell. The name applied to this article of commerce is somewhat of a misnomer, as it is supplied by a turtle ; these turtles are fairly common in our seas, and are usually captured by means of spearing as they lie asleep on the surface of the water. It is averred that the turtle-egg collectors, if they find a lay of eggs less than one hundred and thirty in number, return to that spot twelve nights afterwards, when the same turtle comes again, and, being secured, is always found to be of a good kind. (The ordinary turtle is not interfered with.) The usual price of tortoise shell is about \$6 to \$12 for the produce of one turtle, but occasionally single shells are valued at extraordinarily high prices. Some short time since one was secured by Panglima Ypel, which was said to have been sold for \$500, and more recently it was reported that \$2,000 was asked for a single specimen brought to Sandakan. No people but Chinese would pay such prices for such an article.

Turtle eggs. Some of the sandy shores of the islands about the east coast abound with turtle eggs, which are collected by boats which go in search of them, and quite a large trade is the result, baskets full being always exposed for sale during the season in the shops at Sandakan. The island of Bergoan is the one most favoured by the turtles, and the season is during the continuance of the southern monsoon, viz., from April to October.

Sharks' fins. Sharks abound in these seas, and are caught chiefly by the Bajaus, in a variety of ways, sometimes by hook and line, sometimes in *keelongs* (fish-stakes, or fish weirs they would be better known as in England), and sometimes by spearing, but by none of these methods can the very largest be captured, and they sometimes are seen of immense size. A Bajau boat, however, rarely returns from a trip of any duration without bringing a bunch of tails and fins, usually cut off from fish four to seven feet in length. The quantity in the sea may be

described as inexhaustible, and the larger the sea population grows, the more sharks' fins are likely to be brought to market. Borneo sharks are, to a certain extent, dangerous, but not so very much so; an occasional mother-of-pearl-shell diver is carried off, but, otherwise, accidents happening to persons going into the sea are rarely heard of, not by any means so often as from crocodiles up the rivers. A canoe has been seen to pass over the spot, where, a few minutes before, the two back fins of a shark had been visible, and between which the canoe (a very small one) could almost have been placed lengthways. A crocodile of similar size (if such a thing were possible) would almost certainly have tried to upset it, or at any rate knock the man overboard. The trade in sharks' fins, like most of the other articles hitherto mentioned, is carried on exclusively with China. Prices range from \$8 to \$25 a picul, and exports were, in 1882, \$837; 1883, \$1,105; and 1884, \$1,516.

Sponges. These are frequently washed ashore all along the coast line wherever much coral exists. One or two pretty fair specimens have been seen; but whether sponges of any real value could be obtained by systematic searching, or by a slight amount of culture, remains yet to be seen.

Edible oysters. In some places these abound to such an extent that there are as many lying on the rocky shores as there are stones, and at first sight it is difficult to distinguish one from the other; boat-loads could be obtained without any trouble. They are very good eating, and quite innocuous, so long, that is, as the *rock* variety is procured. There is another kind found adhering in masses to the roots and branches of the mangrove trees, which ought to be carefully avoided, for, if eaten, this oyster occasionally produces an attack very much resembling colic, and even more dangerous. When dried, however, its harmful qualities are to some extent destroyed. It is expected that a certain amount of export business will in time be developed in both these kinds of oysters.

Fish. Nowhere in the world, probably, is there such a quantity and variety of good eatable fish swarming in the seas as off the east coast of North Borneo. This is mainly owing to the wide extent of shallow seas (up to one

hundred and fifty fathoms in depth) and to the numerous islands.

Various of these fish resemble cod, rock-cod, huge perch, whiting, herrings, &c. ; *menungin* is like haddock ; *pila-pila*, soles ; *ikan-merah*, red gurnet ; *ikan-parey* is a general term for all sorts of flat fish, skate, flounders, &c. ; *ikan-tumbun* is nothing other than the sardine ; *ikan-blannak*, mullet. A large silvery-scaled fish has the appearance of salmon, but there the resemblance ceases. A great variety of others have no synotypes in our English waters, but are excellent eating. Several methods are employed in their capture : *keelong* (fish-stakes) ; hook and line ; *serambau* (dip-net) ; nets ; casting nets ; spearing with and without torches, and *butut* (a sort of trap sunk in the water), are the principal. Of these, *keelong* fishing is the favourite when it is intended to capture a quantity. The principle upon which the *keelong* is designed is that of the wire mouse-trap, from which, being once entered, it is impossible afterwards to escape. A fence or barrier extends from the shore to the required distance out at sea ; the fish encountering this, skirt along it, and thus find their way through two outer chambers, till in time they arrive in the end compartment. When once the fish have gone into the first chamber there remains little chance of escape for them, the sides being curled inwards in a heart-shape at its entrance, so that though very easy to pass in by, it is a difficult matter to return ; the compartment at the end is usually round, and about seven to nine feet across. The *keelong* is made of split bamboo, driven into the sand, and lashed together by split rattans, the total length of the split bamboo at the end of the *keelong* being usually from twelve to fifteen feet. Low tide is naturally the time the fish are captured ; a canoe paddling up from the shore frightens as many as possible from the first and second chambers into the end one, the narrow entrance or doorway into which is then closed altogether for the time by men who descend into the water, and put through the catching operations, with some little assistance from above. A curious sight may be seen when all is ready by anyone getting upon the slender scaffolding which surrounds and surmounts the end chamber, the water below being thick with fish of all sorts and sizes. The next proceeding is to

lash a loose piece of *keelong*, or bamboo-matting blind or screen kept for the purpose, to the inside of the chamber (most of these operations, it will be understood, being conducted under water), and being unfolded gradually, the fish are driven into a central fold of it till there is almost a solid heap of them. A basket is then let down from the scaffolding on top, and the fish are simply bailed out by the basketful and thrown into the canoe alongside. Many of the fish manage to get by or under the loose piece of *keelong* as it is being folded around them, and this process has to be repeated three or even four times before all are taken, and even then there are frequently one or two so large that they cannot be got with the basket, and have to be speared. From three to five piculs of fish is not an uncommon take from one *keelong* a day; and four *keelongs* have been known to yield nearly thirty piculs a day between them for a week together.

There is an absence of mental strain or physical exertion in working a *keelong*, which much commends it to the Malay character, for as soon as the fish are caught they are taken to market and sold in one lot to the stall-keepers, and there remains nothing else to be done by the fishermen during the rest of the day.

This industry is capable of being indefinitely increased. If the population were larger, and more pressed for means of subsistence, the fishermen would make larger and deeper *keelongs*, and would no doubt catch many more fish, and a large export trade in salted fish would soon be inaugurated. In the south of Borneo and in Java there is a large inland population, salt fish being one of their staple articles of consumption; and their own seas being unable to supply all they want, they would come to North Borneo for the balance.

Keelongs are a sure method for capturing crocodiles; should one appear in the neighbourhood of a *keelong*, it is certain to be found inside it during the course of the next day or two. No matter how large they happen to be, they but very rarely succeed in forcing their way through the fencing, as the bamboo is very tough and yielding, and, owing to its being partly curled round, the creature cannot exert its full strength. When once caught,

they are easily despatched by a rifle shot through the head, fired from the scaffolding above. The next most important method of catching fish in any quantity is by seining. This mode can scarcely be described as successful hitherto, the takes by its means not affording an adequate return for the capital invested in the seine and the labour involved. Seining has been principally practised by Chinese fishermen from Hong Kong, and there is no charge to be brought against them for lack of energy; but it has been almost painful to notice the disappointing results brought by them to market, after a hard day's toil with expensive apparatus, as compared with the boat-loads of fish brought in by Sooloo men, who have simply bailed them out of their *keelongs*, the construction of which costs but little money. The Chinese, however, are very loth to adopt new ideas, and sooner than practice what is clearly the best mode of obtaining a good catch in these waters, they give up the whole thing in disgust and return to Hong Kong. Far too many young fish are captured in the seine, a matter which may require legislature in the future.

All the other methods by which fish are caught may be described as hand-to-mouth ones, or, at all events, suitable for the supply of the local market only. Hook-and-line fishing is, perhaps, the principal. When, owing to want of rain, the water is very clear, the fish avoid the *keelongs*, and the supply in the market falls short; a canoe with two men lying inside the harbour can always capture from sixty to eighty catties of fish in a few hours, for which, being in request, they can easily obtain \$3 or \$4 in the market. *Serambau*, or dip-net, fishing sometimes results in large takes, but recourse to it is only had in the off season; the dip-net is usually over twenty feet in width, and is managed by a man sitting in an elevated position, who when he sees a shoal of fish passing over the net, lifts it and captures them. The fish thus caught are nearly always mullet; eighty catties a day is by no means an unusual take.

The casting net is usually employed as a means for providing fish for single households. The correct way of handling it is a small art soon acquired, and it affords

good amusement when fishing for shrimps and *ikan tumbun* (sardines). These latter fish are very abundant in the Omaddal district, shoals of enormous size being always visible. The spearing of fish is practised from boats when opportunities offer; large skate and other flat fish, which have a habit of sleeping on the surface, being frequently taken by this means, and at night a bright light, either carried by hand or in a canoe, attracts fish which are then easily speared, but no great quantity is taken in this way. Up to the present time the export of salt fish has been very small, the up-country demand being large enough to take all that is salted; but with an increased population and cheaper labour, a very large and important business may be expected.

FOREST PRODUCE.

Timber.—The enormous quantity of virgin forest in the country affords an unlimited supply of the best woods for every purpose. Very full accounts of the woods have lately been published by the Timber Sub-Committee for the Colonial Exhibition, and also by Mr. A. Cook at the Government Printing Office, Sandakan; the latter is sub-joined in full.

The following report by Mr. A. Cook gives a fair idea of the timber resources of British North Borneo as at present known. He gives the prices at which native or Chinese labourers will bring timber squared and round alongside a vessel. The following are the figures at which a local timber merchant is ready to supply timber alongside vessels. The difference, of course, arises from the fact that the merchant has to allow for his profits, &c.

Price per ton of fifty cubit feet of British North Borneo woods, as supplied by the undersigned free alongside any vessel in Sandakan Bay.

					\$	c.
Billian in roughly-hewn squares	.	.	.	.	20	0
Ballow	"	"	.	.	17	50
Miraboo	"	"	.	.	17	50
Kumpass	"	"	.	.	15	0
Greeting	"	"	.	.	15	0
Russock	"	"	.	.	15	0
Camphor	"	"	.	.	15	0
Serayah	"	"	.	.	12	50
Kruen	"	"	.	.	12	50
Gagil	"	"	.	.	12	50

		\$	c.
Billian sawn into squares, fitches and planks		40	0
Ballow	" " " "	35	0
Miraboo	" " " "	35	0
Kumpass	" " " "	35	0
Greeting	" " " "	30	0
Russock	" " " "	30	0
Camphor	" " " "	30	0
Serayah	" " " "	18	0
Kruen	" " " "	18	0
Gagil	" " " "	18	0
Penago sawn to the thickness only		25	0

SANDAKAN,
25th February, 1886.

(Signed) JAMES McLEAN,
Sandakan,
British North Borneo.

The Colonial Secretary.

SANDAKAN,
14th November, 1885.

Sir,—As requested, I beg to make the following remarks on the timber of North Borneo. There can be but one opinion as to the future trade in timber in North Borneo. The supply is practically inexhaustible, and can be supplied at such a rate as to warrant a profitable trade with any part of the world.

The 'British North Borneo Herald' of 1st November, 1884, gives a descriptive list of the woods, and I will continue the remarks as given in the 'Herald' above quoted.

I. Billian. When newly cut, this timber is of a dark sand colour; about 2 inches of the outside of the tree is worthless; very hard and durable, used for all purposes where strength and durability are required.

The best shingle wood; considered the most valuable of all timber, very large, plentiful in North Borneo; ant-proof.

Sinks; logs are procurable up to 2' 3" and 2' 6" square, and say from 30 to 40 feet; but being a heavy wood large logs are very unwieldy; supply considered very abundant; is being exported by ship-loads. I cannot give the weight per cubic foot, but use the word "*sinks*" or "*floats*." In rafting it is important to know this.

II. Russock (banar). Dark sand colour, which darkens with age, heavy, rough-grained, durable; stands exposure;

a valuable wood for general purposes, posts and beams for houses, wharves, piles, planks ; withstands insects well ; large, plentiful ; sinks.

Logs are procurable up to 2 feet square 40 feet long. It is plentiful all over North Borneo ; a smaller kind of "Russock," more properly named Salangan-batu, is very common in Sandakan districts up to 18" in diameter, length up to 50 feet ; same description applies.

III. Compass. A heavy, hard, reddish, coarse-grained wood, not unlike Mirabou, but distinguished from it by its coarseness and a curious cross-grain ; used for beams, posts, &c. ; large, plentiful ; sinks.

IV. Greeting. Outside sand colour, inside blackish stained, long grain ; very durable in and out of water ; withstands insects well ; used for wharves, beams, general purposes ; grows on the inner edge of swamps and by the sea-side ; size about $2\frac{1}{2}$ feet diameter ; long, plentiful ; sinks.

This wood is not now so plentiful in Sandakan Bay, although 50 or 100 logs are always procurable when required. Greeting is a very good imitation of black oak, and might take the place of walnut. It would do well for furniture. In a new country it is the first wood to disappear.

V. Mirabou. A heavy, dark yellow-coloured wood, becomes darker with age, fine regular grained, very tough and durable, valued as furniture wood, takes a fine polish ; large, plentiful ; sinks. Logs are procurable $2\frac{1}{2}$ feet diameter, 30 feet long ; although considered plentiful in some parts of Borneo, I have not seen much in Sandakan Bay.

VI. Palawan. Fresh-coloured, fine grain, hard and durable, splits easily ; good for posts for houses, beams, piles, shingles ; easily worked ; plentiful.

VII. Camphor. Bastard Camphor, sand coloured, strong grain ; very durable, much used for house-building, planks, &c. ; large, plentiful, easily worked. The tree also produces Camphor oil ; floats. This wood is very plentiful in the island called Pulo Bai in Sandakan Bay, and other parts of Borneo. It abounds in Padas district.

VIII. Krewing. Oil-giving tree, but does not withstand insects well ; useful for common planks, &c. ; plentiful, easily worked ; floats.

In making the statement that this wood does not withstand insects, I referred more particularly to *water insects*, teredo, &c.; for planks and general purposes, Krewing is a very useful wood, and very plentiful all over Borneo; logs as large as 3 feet square 50 feet long are obtainable.

IX. Rungas. Dark red with black stain. Valued as a furniture wood, impregnable to ants, &c.; large; about 2 inches of the outside of the tree is of a light colour and worthless; plentiful; floats.

There are two kinds of Rungas, one with the black stain, and one without, both are alike good for furniture. The wood is not plentiful round Sandakan Bay, although 20 or 30 logs up to 18" diameter are always obtainable.

X. Sirayah. (*Red wood*.) Much used for planks, deals, and general purposes; light and easily worked; very large and plentiful; floats. Logs 5 feet diameter, 40 feet long, are obtainable. The wood is not readily attacked by insects, and is very durable as planks for houses, furniture, &c. The North Borneo Sirayah or Cedar is much richer in colour compared with that obtained in Singapore, and is consequently in demand for the Australian market as a *furniture wood*, especially for railway carriages; it takes a beautiful polish; can be supplied in ship-loads.

There is also a *white* Sirayah equal to the red, but without the colour; a very good substitute for fir or pine.

XI. Penagah. Crooked, dark straw colour with reddish veins, tough and durable for ships' ribs, stern-posts, beams, &c.; long and plentiful on some parts of the coast; grows by the sea-side. The tree bears a fruit or nut from which is extracted a valuable oil. This wood is ant-proof; floats; procurable up to 2 feet in width, though the more common size is 15 or 18-inch planks. There are one or two other woods to be had in quantity, which I think should not be overlooked. These are:

Gagil. White, strong-grained, durable; much used for ships' planks and general purposes; large and plentiful, easily worked; floats. This is a favourite wood with the Chinese, and as it is plentiful it may be considered as one of the export woods. Logs 3 feet diameter and 40 feet long are obtainable.

Urat Mata. Dirty red, strong-grained wood. Recom-

mended for shipbuilding, masts and planks; durable; large, not very plentiful; sinks; insects do not touch this wood. Logs 3 feet diameter 40 feet long are obtainable. Malays prefer this wood for bottom boards for their boats.

Balow. Brown when seasoned, heavy, hard, fine grain, durable, easily worked; used for beams, planks, and heavy work; plentiful, large; sinks. Logs up to 2 feet diameter 30 feet long are obtainable.

Epel. Same description as Palawan but larger; not plentiful; sinks.

Chindana. White, roof and buttress valued for their resemblance to Sandal wood, used for same purpose. The trunk of the tree makes good light planks, but not durable; plentiful, large, or about 18 inches diameter; floats. This wood lasts well if kept dry, and as it has an agreeable scent, fine grain, and easily worked, I know of no more suitable wood for the inside parts of all kinds of box furniture.

Majow. Reddish coarse grain, strong and light, does not stand weather, general purposes; very large, plentiful, easily worked; floats. This wood is much used for planks for houses. Logs 4 feet diameter 30 feet long are obtainable.

Every timber-consuming country (likely to deal with this country), should keep us advised of the following particulars.

(1.) The qualities which woods should possess to suit the trade.

(2.) For what purpose the woods are required.

(3.) The prevailing likes and dislikes of the trade.

(4.) Probable demand for the different kinds.

(5.) The trade measurement and prices obtainable.

Meantime we know very little for what purposes the woods are required. It is perhaps desirable to have a list of Borneo woods showing for what purpose they are most suitable. I beg to submit such a list herewith, the woods being placed in order of quality or suitability.

The following are suitable for furniture and fine wood work:—

1. Penagah, any solid work, or veneering.
2. Mirabou do. do. heavy.
3. Rungas do. do.
4. Selangan Merah, or Sirayah (Red), any solid work,

such as railway-carriages, ships' fittings, cabins, tables, boxes, common cabinets, &c.

5. Urat Mata, any solid work, such as railway-carriages, ships' fittings, cabins, tables, boxes, common cabinets, &c.

6. Greeting. Stronger and heavier than Sirayah. (Vide No. IV.)

The following are suitable for posts and beams for houses, wharves, bridges, railway sleepers, telegraph poles, &c., and generally where strength and durability are required :—

- | | |
|------------------------|--|
| 1. Billian. | 6. Balow. |
| 2. Russak. | 7. Camphor. |
| 3. Tapang or Mangaris. | 8. Daroo. |
| 4. Palawan or Epel. | 9. Urat Mata. |
| 5. Greeting. | 10. Bintangor (especially
for roofing bearers). |

The following are suitable for planking and roofing :—

- | | |
|---|--------------------------------|
| 1. Camphor wood, stands weather well. | |
| 2. Sirayah (or Selangan) } Sirayah Merah is perhaps | |
| Merah. | too good for flooring, &c., |
| 3. do. Puteh. | but being plentiful I place it |
| 4. Krewing. | with these others as quite |
| 5. Gagil. | capable of taking the place of |
| 6. Majow. | pine for such purpose. |
| 7. Madang (Kuning and Sesik). | |

There are many other good woods which might be named, but I wish to name only those which can be supplied in quantity.

I am glad to notice that the Court is inclined to authorize that a few logs be sent home, and I would strongly recommend that two or three large logs of each of these woods I have mentioned be sent to London; smaller samples of the same to be sent at the same time. This is very necessary, for I believe that up to the present time the woods of British North Borneo have not been properly represented by the few samples sent home, many of which, to my knowledge, were cut from young trees, and in some cases even part of a branch.

With regard to ebony, I do not think that the real ebony of India has been found in British North Borneo, but there is a kind of ebony called Arang, a large tree about two

feet diameter; the centre is like ebony and is used as such; preferred to ebony for veneering and inlaying purposes.

It is not plentiful, although several logs can generally be found. The sizes of ebony will run to 9 inches diameter and 25 feet long, the wood is tough and easily split and worked.

With regard to facilities of access, &c., the wood is cut (and squared if necessary) by Malays and Chinese, principally the former, and hauled by buffaloes or manual means to the river, where it is rafted to Sandakan Bay, into which run some seventeen timber-supplying rivers: on the east coast there are also Labuk Bay, Darvel Bay, and Sebuku Bay, and on the west coast, Marudu Bay, Kudat Harbour, Ambong Bay, Gaya Bay, and Padas Bay, all of which afford excellent anchorage and facilities for shipping timber, but up to the present time Sandakan is the only port of export in quantity. The cost is from 10 to 20 cents per cubic foot alongside; this is for ordinary kinds; fine furniture wood would cost a little more. This is for squared timber. Round timber in logs 2 to 5 feet diameter costs from 3 to 5 cents per cubic foot.

The shipping should be done by the crew, as it is sometimes difficult to get coolies used to the work; shipping should not cost more than 2 or 3 cents a foot.

The present export duty is 50 cents per ton of 50 cubic foot; this is supposed to be on timber taken from private lands.

Special Permits are given to cut timber on Crown Lands, cost about 25 cents per acre per annum, with an extra export duty of 50 cents per ton.

Every timber-carrying vessel should have two bow ports capable of taking in logs up to 4 feet diameter, and should also have a steam winch or other powerful tackle.

A sailing vessel of say 700 or 800 tons could bring from England a cargo of coals for Singapore; 100 tons to ballast her to Sandakan, where she could load timber for London or elsewhere.

In reading any description or report on British North Borneo woods it should be remembered that almost the whole country is one gigantic forest, and few people, if any,

have any accurate knowledge of the quantity and different kinds of wood.

It is quite probable therefore that woods which I have described as "not plentiful" (which remark applies only to the coast and bays of British North Borneo) are plentiful in the interior; this may be taken as true as regards Camphor wood and Mirabou.

I am of opinion it would be to the interests of the timber trade if some system of procuring samples of wood from the interior were adopted, and I would suggest that all inland Native Chiefs be instructed to take every opportunity of procuring samples of the different kinds of wood, as well as all other jungle produce or mineral in their district.

Your obedient Servant,

ALEX. COOK,

Treasurer-General.

Rattans are frequently found as low down even as amongst the ne bong palms. The quantity collected is immense, and seems yearly to grow larger; the enormous stretches of flat land on the banks of the Kina Batangan and Labuk rivers and their numerous tributaries being the principal source of supply. The rattan is the stem of a creeping prickly palm scientifically known as a *Calamus*; several stems of great length sprout from one stool.

Collecting is rarely conducted at a distance greater than half a mile from the banks of a river, and there are therefore enormous tracts in which they are entirely untouched. The rotan saga is the ordinary rattan of commerce, but there are several others of more or less value known to the natives as poodloos, toongal, lissang, lugsekan, and others. The rotan poodloos has a girth less than one-fourth that of the rotan saga. Its chief characteristic is that it grows rather on hillsides than in swamps. It is frequently made into blinds and mats. Other rattans there are which are utilised as umbrella handles, walking sticks, &c.

Birds' Nests are made by a small swiftlet of the genus *Callocalia*, which selects caves, the larger and darker the better, for building in. These sort of caves usually occurring in limestone rocks, it is accordingly in this formation that all the most valuable caves are found. The nests

are of two classes, white (puteh), and inferior or black (manas and itam). Collecting takes place twice and in some cases three times a year.

The caves in which the swiftlets build are usually of immense size, and from fifty to several hundred feet high inside. Some of them are pitch dark, in others there is more or less twilight. In some of them, notably the Segaloong Caves near Timbong Mata, the collecting is done by night instead of by day, on account of its being cooler.

The collectors have to ascend the wet and slippery sides of the caves to the roof, and there to move about with the aid of rattan slings and ladders, like flies on the ceiling, in the dim twilight or utter darkness, at a height frequently of several hundred feet from the ground. Even amongst the natives really good collectors are rare, but, at the same time fatal accidents do not often occur; there have been none for the last two seasons.

A good many mistakes and delusions have long existed with regard to these birds' nests, and the caves in which they are found. It is not true, for instance, that the birds growing more exhausted as the nests they successively make are taken away, mix blood with the last ones; or that the caves are necessarily situated on the seashore; or that the material of which the nests are made is any sort of seaweed or other similar substance; or that the first made nests are of good quality, the second inferior, and the third mixed with moss and hay; or, again, that white nest left uncollected turns into black nest. These and other errors, many of them originated and perpetuated even by scientific people, have been lately refuted in the pages of the 'Zoologist.'

The principal caves from which nests are obtained are Gomanton, Madai, Segaloong, Batu Timbong, Baturang, Sapud Batu, Taparong, Boad Chukai, Karoak, Melakop, Penungah, and others. The former alone yields from \$20,000 to \$25,000 worth per annum. Other caves are said to exist which, if worked, would yield even more, viz., Bootong, or Garyangya, Narkeu, Bras Dammit, Phang, and another said to be fifteen days' journey through the forest from the upper Segama river.

The price varies from \$300 to \$1,600 per picul for white nest, and from \$60 to \$150 per picul for black and manas.

Guano.—In the Gomanton birds'-nest cave there is a large deposit of guano, which on analysis is said to show high fertilizing powers.

Gutta percha is the hardened sap or juice of several forest trees ; *Dichopsis gutta* being the scientific name of the one yielding gutta of the best quality. It grows chiefly on poor sandy soil, and to obtain the sap the tree has to be felled ; rings are then chiselled round it at distances of 15 inches or so apart, from which the gutta is scraped. From 4 to 6 catties is the usual product of one tree.

The experiment of tapping the trees as they stand has been tried, but the amount collected was very small. The greater part of the full grown trees of the species *Dichopsis gutta* have been felled, but there are a great many saplings growing up ; these however will probably take some twenty years to mature. There are four kinds of gutta in Borneo : but Gutta Kalapei, or Targuk, as it is called by the natives, the produce of *Dichopsis gutta*, is the best and most expensive, and usually fetches about \$70 per picul ; two other sorts next in value either do not exist in North Borneo or the natives have not yet learnt how to work ; while the fourth, Gutta Semalam, is beginning to come out in increasing quantities ; it is, however, only valued at about \$20 per picul.

The value of gutta exported from the port of Sandakan alone in the year 1885 was \$24,850, but in previous years was much more.

India Rubber is the sap of a creeper of the genus Willoughbeia, which attains some three or four inches in diameter. It occurs very generally all over the country, but is not particularly plentiful in any one district that I am aware of. It grows under natural forest shade, and requires only about four years to come to maturity. From the almost complete absence of expense attending its cultivation, it might well receive more systematic attention both from Europeans and natives ; the latter have already made some progress in this direction. The price usually obtained by collectors is from \$30 to \$40 per picul.

Beeswax.—The supply of beeswax in the country is

enormous ; the quantity collected however is but the smallest fraction of what falls to the ground uncollected and is lost. Over the whole millions of acres of forest it occurs more or less everywhere. The bees usually build in a very tall tree known as Mengalis, and on the banks of the Kina Batangan as many as forty or fifty nests are to be seen in single trees. Even of this but very little is collected, and it is simply impossible to estimate the value of the wax that is lost yearly.

Bees' nest collecting is difficult and dangerous work, and is best done by adepts at birds' nest gathering. The trunks of the Mengalis trees are up to 8 feet in diameter, and the branches are eighty feet and more from the ground. Night is the time when the nests are taken ; the collector carries up with him some smouldering weeds, probably of some kind of *artemesia*, which he dangles below the nest, and the smoke seems to have a stupefying effect upon the bees, and the nest is then taken and lowered to the ground.

The mode adopted for ascending the trees is somewhat curious ; a long sapling is attached to the tree by three or four pegs or rivets ; a second sapling is then placed above the first one, and its bottom end is secured to the two highest pegs already attached, and as each subsequent peg is fastened, the man ascends to it and fastens another one above, and so on, up to the branches, each new sapling always being secured by two pegs before he trusts his weight to it.

Accidents are rare, but owing to the trouble involved, bees' nest collecting is not very popular ; the people never trouble to exert themselves unless they are very much in want of something ; but however much the population may increase, it will always have at its command a means of supplying its superfluous wants, and the larger it becomes, the greater the export of beeswax is likely to be. In the old days, while there was still a fairly large population on the Kina Batangan, before small-pox carried away nearly all that was left of it, 600 piculs a year passed through one Chinaman's shop.

Dammer is a resin or gum which exudes from various forest trees ; it is generally found in the ground below them,

but may occasionally be seen in huge masses, not unlike icicles, hanging from their sides. A single piece weighing five piculs has been found on one tree, but necessarily these large masses get broken in collecting. The value of the dammer found in the Sandakan district is rarely over \$2 per picul. Further to the north, much better sorts are found, the dammer mata kutching (or catseye), of Palawan being worth \$10 a picul, while in Malludu Bay, gum copal, occurs.

Barus Camphor is the product of a fine forest tree ; it is very unlike what is known as camphor in England, and is much more expensive, a pound weight of it being worth as much as \$20 to \$30. It is principally used by the Chinese for embalming, and occasionally by our natives for the same purpose.

The tree occurs more or less plentifully throughout all the forests, but it is only at a certain stage of its growth that the camphor can be obtained ; this ripe stage however, lasts, the natives say, for about five years. The quantity to be obtained from one tree varies considerably, from 1 or 2 catties to as much as 20 or 25. The natives have a saying, that if a man obtains over \$600 worth from one tree, he will die within the year !

To procure the camphor, the tree has to be felled entirely and then split up. Looking for camphor trees suits the Malay mind exactly, as in fact does gutta percha hunting, and many similar proceedings ; they idle about for days together, always in the hope that they are just going to make a rich find, but it is not very often that a party of camphor hunters come across a tree in the requisite stage of ripeness. It would appear that the tree has to be of very old age, probably one hundred-and-fifty years or more, before the camphor in it develops ; until then it seems to exist in a state of oil.

There are three allied species of this tree, in which a very similar oil is found, from one of these the well-known and valuable cayu putih oil is obtained (barbarously changed to the cadjeput oil of chemists' shops in England) ; Krewing, from which a very similar oil is taken, and Durum, the true barus camphor tree, the oil from which also has a value, but nothing as compared with what it is worth in its

concentrated state. It is only in Durum trees that the oil seems to concentrate in this manner.

The natives have many tales and fancies about camphor collecting; the way in which, after wandering through distant forests sometimes for weeks without success, they find a ripe tree almost within sight of their houses; or after having had a tree under observation for months, they find suddenly that it seems to have been ripe for a long time; or more particularly, when, having as they believe, established the fact of a tree being in the ripe stage, they have felled it and even obtained some camphor from it, the yield suddenly ceases. These and like occurrences have invested camphor seeking in particular with more superstitions than any other pursuit, and that is saying a good deal. The Sundyaks, the chief collectors, are guided in most of their operations in life by good and bad birds, and when going camphor hunting these omens are more carefully looked for than usual. Amongst others, perhaps the most curious idea is, that implicit silence must be maintained during the whole of the search, or no proper trees will be found, and any one speaking to a camphor collecting party is liable to be fined on the spot. On one occasion a party of men on the bank of the Kina Batangan being hailed as to the distance off of the next village, gave the unexpected reply, "Fine you two small cannon for speaking to us!"

Meinyah Tungkawang.—A vegetable fat or tallow which is extracted from the fruit or seed of two or more forest trees. These trees abound more or less throughout the territory. It is asserted that in the proper season tons of the fruit might be collected floating on the surface of some of the tributaries of the Kina Batangan, and it is also said to be very plentiful in Province Dent. As yet, however, the population, having so much other natural produce ready to their hands, which can be obtained with a minimum of exertion, have not troubled themselves about *Meinyah Tungkawang*.

SWAMP PRODUCE.

The greater part of the coast is lined to a considerable depth with enormous mangrove and nipa swamps. One alone of these swamps, extending eastwards from Sandakan

Bay for sixty or seventy miles, with an average depth of ten miles or so, contains some four hundred thousand acres. This great acreage of apparently useless swamp is, however, likely to be a source of great wealth in the future. These swamps are everywhere traversable by numerous lagoons, backwaters, and creeks.

Mangrove grows on what is really shallow sea, and mangrove swamps should not be, and in fact frequently are not, marked on the map as other than sea. Mangrove wood is much used as fuel, and even after paying a small freight to Hong Kong, is bought there by some people in preference to coal.

Mangrove Bark is used as a dye and also for tanning purposes. A recent analysis has shown that it contains 41·398 % of tannic acid.

It is a well-known fact that by doing away with mangrove swamps much sickness is caused ; but, in addition to the distance they are from any of our towns, their size is such that they will meet the largest requirements ever likely to be made upon them without showing any perceptible diminution.

Nipa Palms.—Above the mangrove and where the water begins to be brackish, nipa palms commence, and large swamps of them intervene between the mangroves and the true land. Those nearer the sea are comparatively small and stunted ; but where the water is more fresh than salt, the leaves attain a height of twenty feet and upwards, presenting a very handsome appearance, resembling the single fronds of huge ferns. This graceful palm is utilised in various ways, the principal being in the manufacture of thatching for house-roofs, in Borneo called attaps. This manufacture is quite an industry of itself, and affords employment to many natives, chiefly women, the men simply bringing cargoes of the fronds to the women, to be stitched with split rattans and made up.

Attap roofs are the best adapted for the Borneo climate, for, whilst the winds are never strong enough to blow them away, they afford the coolest protection against the sun, of any kind of roofing known. Attaps are being shipped to China, and if they gain in favour, there are the possibilities of a very large trade being established.

Kadjan mats, also manufactured out of nipa leaves, are indispensable for travelling purposes; packed up in the smallest compass when not required, each one is capable of affording sufficient cover at night for two or three people, either in boat or forest journeys. They also almost exclusively form the material for side walls and divisions within houses.

The young nipa leaf, unfolded and dried, forms the favourite covering for cigarettes, in preference to paper. The fruit is eaten, and indeed on one occasion in the old days, when Sandakan ran out of rice, the people had nothing else to live upon for a whole month. In taste and appearance it is something like cocoanut, but much tougher. Messrs. de Lissa and Sachse have taken out a patent for extracting a valuable fibre from nipa leaves, but the matter has never been developed. In Sooloo, salt, and somewhat strange to say, sugar also, is made from the burnt stem of this palm; considerable quantities of this salt is imported into Sandakan, where the people have not yet cared to make it for themselves.

Nebong Palms.—Above the nipa, and where the water is almost fresh, the nebong grows. It is plentiful in low and somewhat swampy places along the coast, and is generally a sign of the presence of fresh water in the vicinity. It attains a height of 40 to 50 feet. The unsplit round trunks are used for the posts of Malay houses, while when split up they are employed for flooring, rafters, &c. As a rule, the posts do not last more than three or four years, but as the wood is plentiful, and requires no preliminary preparation beyond cutting to the proper lengths, this disadvantage is the less felt. The head, or cabbage, formed of the unexpanded leaves, is a delicious vegetable.

Its utility to the natives will be understood from the fact that nearly all the houses in the city of Brunei, with a population reckoned at 20,000, as well as the rough bridges, or "jumbatans," connecting them, are built of this palm over the water of the river of that name. This tree will be found most useful by tobacco-planters for all temporary buildings, such as drying-houses, coolie-lines, and so forth, and some have been already exported to Sulu for these purposes.

CHAPTER VI.—MINERALS.

Gold.—For years past, gold, and in no inconsiderable quantities, was said to have been found in old days in the rivers Maluar, Belung, Tumegang, Segama, &c., but it was not until the year 1883 that any colour was actually obtained, when it was found by Capt. Beeston on the Segama. No further move was made, however, till the summer of 1884, when some Sarawak Hadjis took letters to the native chiefs of the Segama asking them to point out the gold localities, and as a consequence they found and brought back to Elopura a small quantity. Mr. H. Walker, the Commissioner of Lands, then proceeded to the same place, and after encountering considerable difficulties and hardships, discovered it in workable quantities.

Gold in minute quantities has also been found on the Sapaguya river in Sandakan Bay, on a river of the same name in Darvel Bay, in the Kina Batangan near Quarmote, and in the Sugut, as well as other rivers; and when the country is more opened up, and the proper localities known, it is expected that a large portion of the north-east coast will be found to be an auriferous district.

The following extracts from Capt. Beeston's able report, dated May 15th, 1886, of his last exploration, will afford the latest information as to progress of gold discovery in North Borneo. In his journey up the Segama river he found that "the country just below Pulo Kawak is highly auriferous, "and covers a large area;"—"the payable area here would "prove remunerative work for a large mining population for "years to come. Above Pulo Kawak are three islands; all "the beaches here about contain gold, and all would pay to "work systematically;"—"every beach on either side contains gold, and all of them worth working."—"The middle "Segama district will doubtless be filled shortly with a large "mining population."—"From above the Bole the whole "Segama river is one endless chain of payable beaches, some "richer than others, but invariably the gold is coarse."—"Below Riam Tinaram are several beaches all payable.

" All this distance from Giants Gates, and as far as Sungei Belung is a conglomerate country, and where the beaches show red jasper boulders or pebbles, it is a sure indication of payable gold. It would be very hard to prospect any beach in this locality without encountering red jasper, which rock in fact would appear to be an unerring indication of the presence of gold in the locality." Above the Sungei Belung "is a long stretch of river in which the rock is massive block conglomerate. The whole river along this formation would pay to work, and if in the working the conglomerate should be found to junction with slate, heavy deposit might be looked for, more especially in the shape of payable quartz reefs."

Proceeding up the river, several beaches were passed all containing gold.

Speaking of the tributaries, Captain Beeston reports that on the Bole Besar, on the 9th April, a reference to his diary shows that "four Chinese with a cradle got gold worth \$17·20, or \$4·30 per man for the day's work. The Malays were equally successful, comparatively speaking, with their wooden dishes ;" and of this river he repeats his conviction that "it will provide remunerative and profitable employment to a large population for some years to come." On the Bole Damit "the gold is not so much in the river bed as in the country at the forks of the stream ; it is coarse, and from the character of the ground it is likely that small nuggets will be found." In Rocky Creek "gold exists both in the banks and in the river bed. Alligator Creek has payable gold at its mouth."

Captain Beeston summarises by saying that "payable and in some cases *highly remunerative* diggings exist in the main Segama from the Dusun Campong up to the highest point reached," and that in addition "five streams reported on separately contain gold in large quantities." There can, I think, be no doubt but that the source of the river is in the hills to the west or south-west of Silam, probably between that place and Bukit Madai. From this the inference is that the hills in this locality contain the matrix from whence the gold is washed down the main Segama, and that the hills thereabouts most probably, almost to a certainty, contain rich quartz reefs."

Speaking of the country generally, he says that, in his opinion, it will never pay Europeans to rush, "not because the gold is not in sufficient quantities, but for the reason that all the conditions of life here are entirely different to those in Australia or California. The white digger cannot travel or feed himself according to his peculiar ideas in this country, and would probably soon lose his health. I am of opinion that, when once the fact of the existence of gold is known, a few white diggers may come here and make profitable work, but a rush of white diggers in a large body should be discouraged. I have no cases of sickness to report during the trip. The total amount of gold got in prospecting the different localities amounted to two pounds three ounces as far as weighed, but more gold than this is still held by the men." "I am confident that by sluicing in the Bole, had I stopped there a month, I could easily have got a hundred ounces of gold."

Precious Stones.—The best authenticated account of the existence of gems is that of two diamonds found near Quarmote in the Kina Batangan, of which the larger weighed a carat and a half. A stone, presumably a ruby, was said to have been found in the Sugut some years ago.

Coal has been found in many places in British North Borneo, and there is said to be a considerable outcrop of it on the Quarmote River ; but so far the only place at which it is known to exist in an accessible district is at Batu Batu, in Province Dent, where the seam rises to the surface—might be easily worked—and is said to be of excellent quality.

Of other metals and minerals, traces of Quicksilver are reported also from the Quarmote river, which indeed seems to give promise of being one of the richest mineral districts in the territory. Specimens of Copper have been brought from one or two places. Tin is said to have been found in more than one locality, and no doubt the country, more particularly the southern parts of it, and very probably the district surrounding Darvel Bay, will prove to be very rich in minerals when properly explored.

CHAPTER VII.—AGRICULTURE.

UP to the present time agriculture in British North Borneo has been almost entirely experimental, but sufficient knowledge has now been obtained to permit of advancing beyond this stage, and commencing operations on a larger scale, with such plants as are ascertained successes.

Tobacco.—About nineteen years ago it was discovered that tobacco grown in certain parts of the East India Archipelago was particularly adapted for use as wrappers for cigars; and Deli, North Sumatra, soon attracted capital and labour, until the importation into Amsterdam and Rotterdam, of East Indian tobacco, increased from thirty thousand pounds in 1865 to seventeen million pounds in 1882, and has since been steadily increasing.

Many fortunes were made in Sumatra by private individuals, and several large companies sprang into existence, which have continued to flourish, as will be seen by the undermentioned dividends which were declared last year:—

	FLORINS.	DIVIDENDS.
Deli Company, Capital . . .	2,000,000 . . .	100%
Deli Batavia Company, Capital . .	800,000 . . .	105%
Amsterdam Deli Company, Capital .	600,000 . . .	30%

Planters in Deli are hampered by heavy taxation, and as suitable land is now difficult to obtain, a new field is eagerly sought by tobacco planters. The first Deli planter who explored the territory of the British North Borneo Company, wrote:—"The first tobacco leaves were brought to me at Niow, on a very steep high hill, and when I saw the character of the plant, though only in a few poor leaves, culled and brought to me by a native, I was amply rewarded, and knew from that moment that North Borneo would be a tobacco-producing country."

Tobacco of an excellent quality has long been known to exist in North Borneo. The soil, with its covering of "humus" is very suitable, and the seasons are favourable. Planting takes place in April or May, and in seventy days the leaves are gathered, so that three months only elapse

from the time the seeds are put in the nursery beds until the gathering of the harvest.

One company formed in China and another in Borneo have already commenced operations, and the crop of the former will be brought to market in a few weeks.

Extracts from recent letters, received Oct. 9th, 1884.

Governor Treacher writes, under date 22nd August, 1884:—"Messrs Meyerinck and Funke are no doubt excellently well satisfied with their selection of land at Banguey, and particularly well pleased with the climate and seasons. Indeed the climate and seasons here appear to excite the wonder of all planters. Reece was especially struck with it. . . . Gibson too is perfectly well satisfied with Sandakan Bay, and climate, for tobacco. . . . The experiment in the Suanlambah conclusively proves so far that this country will do for tobacco. . . . I return to tobacco, there seems every reason to conclude that it will do as well here as in Sumatra. When this fact becomes known, I presume there will be quite a small rush to the country; as the Dutch Government is, I hear, not popular in Sumatra, and the land available for tobacco there is becoming scarcer."

Mr. Cook, the treasurer, under the same date, says:—"I visited Suanlambah last Sunday, and met with quite an agreeable surprise; tobacco growing in fields cultivated like a farm in England. I saw about ten thousand plants about five feet high just about ready to cut, and 150 more in various stages. Planting is going on daily. Mr. Gibson is satisfied that the soil will grow tobacco of the finest quality. Two drying sheds are finished."

*Extract from MESSRS. SALMON & GLUCKSTEIN'S letter,
dated 4th June, 1886.*

"I have the pleasure of informing you that the sample of Borneo tobacco you were kind enough to show me, and to let me test, is first class, and in my opinion would, judiciously handled, readily be adopted by all cigar manufacturers in England and America as a perfect substitute for Sumatra

leaf. I have no hesitation in saying that, with a little more care being taken in fermenting it, this tobacco should realise from 3s. to 4s. per lb. in first quality brown wrappers."

*Extract from MESSRS. WESTERVELD & CO.'s letter, dated
15th June, 1886.*

"Although we have seen as yet very little of North Borneo tobacco, and that in an unfermented state, we come to the conclusion that the tobacco is fully equal to Sumatra, and may later on be even better than Sumatra; it will be the tobacco of the future."

*Extract from MESSRS. H. N. DAVIS & CO.'s letter, dated
2nd July, 1886.*

"Since writing the above, we have sent up to the Colonial Exhibition and been favoured with a type of the tobacco; judging therefrom, and making all allowances for the fermentation not being settled, we have not the slightest doubt in asserting that the characteristics are most satisfactory as compared with those of the growth of Sumatra; the leaves are occasionally rather thick and the veins somewhat prominent; the sorting should have more attention; but all these faults can be remedied with care. The great point is, judging from the type we have seen, we can pronounce the growth a genuine cigar tobacco growth, and with more care will prove a most formidable rival to Sumatra."

At a meeting of Tobacco Brokers and others interested in the trade, held in the Conference Hall of the Colonial and Indian Exhibition on 6th August, 1886, under the auspices of the London Chamber of Commerce, the samples of British North Borneo tobacco were exhibited with others; and a report upon them has been made by Mr. C. A. Muller, of the firm of Messrs. Westerveld and Co. This gentleman having been for more than fifteen years largely interested in the culture of Sumatra tobacco, and thereby acquired an extensive and practical knowledge of its management as regards planting, importing, and sale, may be considered a competent authority on the subject; and his report is as follows:—

"The tobacco grown on the Suanlambah Estate, North

“ Borneo, as exhibited in the Colonial and Indian Exhibition, although not fully cured, promises to become a formidable rival to Sumatra, as soon as large quantities can be produced. The North Borneo tobacco is almost in every respect equal to the Sumatra growth, and certainly superior to that grown in Sirdang and in some parts of the Lankar district. It ranks with the Deli tobacco, which is acknowledged to be the finest grown in Sumatra. The leaf of the North Borneo tobacco from the Suanlambah Estate is full grown, healthy, strong, and elastic, broad and well feathered. The colour is good ripe brown ; a large proportion is the rich dark brown, so much liked in England and America ; and a fair quantity also of the light brown colour, so suitable for the German market ; when this tobacco has undergone a full and careful fermentation, the colours will greatly improve, they will become more level, and lose the mottled appearance of the not fully fermented leaf ; then they will undoubtedly make very handsome cigars, and possess also the gloss so much liked in Deli tobacco.

“ The burning is very fair, although, as is well known, fresh soft and imperfectly fermented types will at first not burn so white as those properly fermented ; this is the case with almost all cigar tobaccos, Sumatra not excepted ; and I have not the slightest doubt that the burning of the Suanlambah tobacco, after a careful and full fermentation, and if it has not been cut in an unripe state, will be found equally as good as the best Sumatra.

“ The flavour and taste is, in my opinion, not inferior to Sumatra, and will also much improve after a full and good fermentation.

“ The productiveness of this tobacco is great ; one pound English weight of that shown in the Colonial and Indian Exhibition has produced or covered nearly 500 good middle-size cigars. Thus 2 lb., or say even $2\frac{1}{2}$ lbs. to make sure, would cover 1000 cigars. Now every man in the cigar tobacco trade must admit that such a productiveness is fully equal to that of Sumatra.

“ On the whole, so far as we are at present acquainted with the North Borneo tobacco grown on the Suanlambah estate, it promises to become in all respects—texture,

“ colour, burning, flavour, taste and productiveness—equal
“ to the best Sumatra tobacco; and considering that
“ Sumatra tobacco has reached its zenith, and that a large
“ proportion of the virgin soil, after nearly 20 years planting,
“ has been absorbed, North Borneo has a brilliant future,
“ the more so as the Sumatra tobacco seems to get inferior
“ from year to year, owing partly to the now limited area
“ of virgin soil, and partly to the enormously high dividends
“ which Sumatra Companies and planters made of late
“ years, in consequence of which they all plant for quantity
“ and not for quality, while the sorting has been sadly
“ neglected; for those reasons, but more so on account of
“ the extremely high prices which must be paid by second
“ hands, not only the German, American, and English, but
“ even the Dutch dealers (second hands) would gladly
“ welcome in North Borneo tobacco a new rival. Mr.
“ Harkema, a well-known Amsterdam broker, in his speech,
“ expressed himself in the same way, and was full of praise
“ of the North Borneo tobacco which he saw in the
“ Conference Hall of the Colonial and Indian Exhibition.
“ Messrs. P. Meerkamp Van Embden and Zoonen, also
“ well-known Rotterdam tobacco brokers, who received a
“ small type of the Suanlambah estate tobacco, have a very
“ good opinion of it, and believe that North Borneo has a
“ brilliant future, if it produces tobacco like that shown in
“ the Exhibition.

“ Messrs. B. Morris and Sons of London, an old and first-
“ class firm of cigar manufacturers, state that the pro-
“ ductiveness of this Suanlambah tobacco, of which they
“ received a sample, is on par with the first Sumatra leaf of
“ average crop.”

Sugar.—Whatever question there may be as to the profitable production of sugar, there is only one as to the luxuriant manner in which the cane grows. In however primitive a mode it is planted, it grows with the utmost strength and vigour, so much so that the minimum of care bestowed upon it by the natives enables it to overgrow weeds that would choke it in any other country. This is probably attributable to the soil and climate being extremely favourable to this particular plant, which has therefore been a great favourite with the labour-sparing natives. As it

does so well with them, it can be imagined how well it would repay systematic cultivation.

Owing to the heavy fall in price consequent on the over-production of beet-root sugar, cane growing has been but little tried by European planters in North Borneo as yet, and nearly all that has been grown has been sold in the local market for chewing purposes. Some few experiments in sugar-making, however, have shown that the cane contains an unusually large percentage of saccharine matter. Of the canes tried, Sumbelowan (yellow streaked with green) gave the best results, yielding syrup of a density of 10.5 per cent. (Beaume); Tubu Putih (or Lahinia as it is called in Australia), giving a result of 9.5 per cent.

The possibilities of growing beet-root are now pretty well known, and its cultivation has been somewhat curtailed, nor is there much chance of its being increased; there is now reasonable expectation that when present stocks of sugar are reduced, some recovery in price may be looked for, but it is not therefore to be supposed that prices will ever quite regain their former level; and it is clear that only those places that are possessed of the greatest advantages in the way of cheap labour, cheap land, suitable soil, favourable climate, and great facilities for transport and export, will ever be able to successfully compete against the lower prices caused by the large production of beet root sugar favoured by bounties.

All these advantages are possessed in an eminent degree by British North Borneo.

Labour is always to be obtained at from \$7 to \$9 a month, the labourer finding his own food; this compares extremely well with Australia, where, for instance, we hear that Chinese receive £3 a month and rations (or say over \$20 per month).

And now that agriculture in Java has received a severe blow, it seems probable that a large supply of skilled and acclimatised labour can be had from that quarter, at even lower prices.

In Cuba and the West Indies a Chinaman's wages on sugar plantations are even higher than in Australia.

Land possessing every advantage for sugar growing, including river frontage, is to be had by thousands of acres at the very cheapest price.

Soil—there is no question as to its suitability. Wherever cane is grown, from a few stools in a Chinaman's garden to the rather large quantities put in by the natives of the interior for their own consumption, one glance is sufficient to show how it thrives.

Transport.—There are immense facilities for carriage by water, both of cane to the mill, and of sugar from the mill to the ship's side. Taking Sandakan Bay for example: the numerous rivers which run into this magnificent harbour are lined along their banks with hundreds of acres of land of the most suitable kind for sugar growing. Mills erected at the mouths of these rivers could be supplied with cane by the boatful, dropped down with the tide from the fields above; and the sugar, when manufactured, could be kept until a steamer was expected to call at Elopura, when it could be sent across the harbour and put straight on board the export steamer, thus saving all the expense of coolie hire, wharfage, rent, and all other expenses incident on trans-shipment.

Climate.—Nothing could be more suitable for the growth of cane than the climate. Not only is British North Borneo free from those frosts that occasionally destroy whole fields in some parts of Australia, but also, owing to the even distribution of the rainfall, and the infrequent occurrence of either too wet or too dry seasons, crushing can be in constant operation nearly all the year round, with the exception perhaps of a few weeks in December and January. This is one of the greatest points in favour of sugar making in North Borneo as compared with other countries.

The chief disadvantage is the number of wild pigs, but they are not more numerous than in other tropical countries, and in any case hard wood is at hand, in any quantity, to make fences.

With all these combined advantages, there seems little doubt but that North Borneo, when sugar-making is undertaken seriously, will soon take the lead as one of the largest sugar producing countries in the world.

Pepper is in course of trial in two or three places, and that longest planted is in heavy bearing. It would have been much more extensively grown but for the difficulty

in obtaining slips from the Straits, as the Chinese there, knowing what a good paying plant it is, do all they can to keep it to themselves. There are now, however, so many growing plants, that there will be no further difficulty from this cause.

Fifteen years ago Atcheen used to be the country exporting most pepper, but the war there has almost entirely stopped its cultivation, and the population has been so reduced that even if the war ended, of which at present there seems no prospect, there is no chance of pepper growing being resumed on any scale. In Singapore and Johore the soil, very poor to commence with, is nearly all used up. In Sarawak the cultivation is extending, and is a source of great profit to the grower and to the country generally; but the soil is against any great extension, except in some favoured spots. Owing to these causes, the price of pepper is continually advancing. Fourpence a pound used to be looked upon as a paying price to the grower; but for long past the price has been rising about a halfpenny a year, until it now stands at sevenpence halfpenny per pound, and the profits on its cultivation are undoubtedly something enormous.*

Pepper seems to flourish in but few countries, Borneo and Sumatra being almost the only two; and owing to the disturbed state of the latter, its cultivation in the former, and in British North Borneo particularly, seems likely to be largely extended. In fact, Borneo may, in time, become one of the largest pepper producing countries in the world.

Mr. Crocker has written a pamphlet on the cultivation of pepper, containing much valuable information, which will be found very useful.

Gambier.—The cultivation of this plant usually accompanies that of pepper. There is none at all to show in North Borneo, as there has never been a single plant there. The reason of its being a favourite of pepper growers is, that its leaves, after having had the gambier boiled out of them, form a capital manure for pepper plants, while to other plants they are said to be injurious. Of late years the

* Pepper has again risen in price since this was written, and is now at 7½d. for black and 1s. 1d. for white.

demand for gambier has increased, several new uses having been found for it (hardening sails and the like); and as most of the available land round Singapore and Johore has been used up, its cultivation does not seem likely to extend, except in North Borneo.

Manila Hemp, known in the Philippines as abaca, and in Borneo as lanoot, is the fibre extracted from the stem of a plant of the banana tribe, *Musa textilis*. Frequently attempted in other countries, it would seem that it cannot be grown successfully anywhere else than in the islands hereabouts, and it has long been a speciality of the Philippines alone. A small amount of rope made of it is exported from Sooloo, and wherever it has been tried in North Borneo, it has done equally well. The difficulty in Borneo has been the want of trained labour to manipulate it, the process of extracting the fibre hitherto having been a long and tedious one; but all these difficulties are obviated by using some of the new fibre machines; and as a consequence the cultivation of Manila hemp may be expected to receive a large impetus shortly.

In the Philippines, charges and duties upon trade and shipping are very heavy, and commerce is much harassed by the officials, business men therefore will much prefer dealing with North Borneo for this article, than with a Spanish governed country, and there is no telling to what extent the Philippines may be supplanted in its production.

Musa textilis, like other bananas, grows better on gentle slopes than on the flat, so that land, not suitable for sugar and other plants which thrive best on the flat, can be planted up with it. Like sugar cane, the bulk requiring to be handled is very large compared with the result produced by manufacture, and in selecting a site for a manufactory care must be exercised in order that the stalks of the plant may be conveyed to it at a minimum of labour, and therefore of expense. There seems no reason why the fibre machines should not be attached to the sugar mill, and boats used for conveying the stalks to it in the same way as the cane.

The cultivation of *Musa textilis* is attended with but very little expense. Being such a vigorous, robust

plant, it requires but slight aid to help it to keep down the weeds. The felling, burning, and clearing of the forest is therefore almost the only expense attending its cultivation. It is not touched by wild pigs, though a plantation of true bananas, bordering an unenclosed nursery of *Musa textilis* has been known to be rooted up. A fresh stem in each stool is said to ripen ready for cutting every two months, and as with other plants in North Borneo, there is no season : when once it yields ripe stems it goes on continuously. Stools have been known to go on untended, and unmanured for three years, without showing any diminution of their producing powers.

Cocoa.—On the Segaliud river there are two or three small groves, planted by the natives long ago, which thrive admirably and bore freely. A small European plantation of cocoa on the Sibooaga was doing remarkably well, commencing to fruit, when circumstances led to its being abandoned ; even after this they continued to bear. The vigour and size both of the trees and fruit at Segaliud lead us to hope that cocoa will be one of the main products of the country if properly tried on good soil.

Cocoanuts.—The cocoanut palm flourishes everywhere in this part of the world, inland as well as on the sea shore, which is somewhat strange, as in many places there is a theory that sea air is a necessity for it ; whereas in the Philippine Islands, groves of countless thousands of them exist far inland, bearing heavily and looking extremely healthy. In North-Eastern Borneo also, the only two groves known, one at Malapi and one at Segaliud, bear nuts larger than the average.

The demand for cocoanuts and copra is very large, and with cheap labour, North Borneo is able to produce nuts at a lower rate than almost any other country. The great point in its favour is that, owing to the suitability of the soil and climate, trees bear fruit much earlier than in most other countries. A considerable number of trees in a grove should be beginning to bear at from four to five years of age.

The uses of the cocoanut tree are manifold ; the nut itself is almost a necessity for curry making all over Malaya ; the dried kernel, known as copra, is in steady

demand in England and elsewhere for oil making, and other purposes. Tapped trees yield cocoanut beer, or tuba, as it is called in the Philippines. The refuse of the kernel after the oil has been extracted is used for manure, and for food for cattle and pigs; the husk yields coir for rope and mat making.

The Betel, or Areca Nut-palm, flourishes extremely well in North Borneo. A good trade is done with China and Europe from other tropical countries, and there is no reason why Borneo should not also be an exporting country, more particularly as large quantities of these trees are growing in the abandoned native clearings everywhere, on the Kina Batangan particularly.

Liberian Coffee has been tried in several places with fair success so far; notwithstanding that leaf disease has made its appearance in one or two places, the oldest planted trees are bearing freely; but the operations of picking, pulping, &c., are found to be more expensive than in the case of Arabian coffee, and until more light is thrown on this subject, and it is known with certainty the worst that leaf disease can do, the cultivation of Liberian coffee on a large scale is hardly advisable.

Should it be proved that Liberian or any other kind of coffee can be made to pay, immense districts will be available for its cultivation, as there is no necessity that it should be planted near to water transport. It is a strong handsome plant, which "flatters" the planter almost from the first day it is put in the ground; its growth is said by experienced planters to be very much more rapid and vigorous in Borneo than in India.

Kapok, or Cotton flock, has been long known in the East as a material for stuffing mattresses, pillows, and the like, it being much preferred to feathers, and nothing can be cleaner or more suitable for such purposes. Latterly a demand has been springing up for it in Australia and Germany.

It is said also that the seed affords a very nitrogenous and palatable substance, likely to be more and more used as a food for man as well as cattle.

Cotton flock grows very freely in North Borneo, and is remarkably easy and cheap to cultivate; the ground being cleared in the ordinary manner, all that remains is to obtain

cuttings of cotton flock trees of the length of an ordinary walking-stick, which are simply stuck in the ground on a rainy evening. These grow up so quickly that with but one or two rough weedings they are large enough to take care of themselves.

India Rubber has been before referred to under the head of Forest Produce, but is well worthy of further remark as a plant which would repay European cultivation.

As mentioned before, its cultivation is attended with but very little expense, as it grows best in ordinary forest without any felling, clearing, or subsequent weeding being necessary. As nearly the whole work entailed would be of a "forest-ranger" nature, to see if the plants were coming on properly, and to warn away any bands of native collectors, the care of an India rubber forest would seem to be work that would be very suitable to any one with natural history or sporting tastes. In four or five years time every creeper should give two or three dollars worth of "gutta susu" as it is called.

Sago Palm.—Native name "rumbiah." Two kinds are known in Borneo: *Sagus*, or *Metroxylon laevis*, the spineless variety, and *Sagus*, or *M. rumplii*, the trunk of which is armed with long and strong spikes, which tend to preserve it when young from the attacks of the wild pig which abounds in all parts of Borneo.

The palm attains a height of from twenty to fifty feet, and grows in vast forests in swampy land, along the banks of rivers, not far from the coast.

What is known in Europe as sago is obtained in the shape of a fine white flour from the heart of the palm in the following manner. Just before the terminal spike of flowers appears, about six to eight years from the time of planting, the palm is cut down at the root, divided into lengths to suit the manipulator, and each length split in two, when the pith is scooped out by means of bamboo hatchets, a thin outside skin or rind being all that is left. The pith is placed on mats over a trough by the river side, and, water being constantly poured over it, is trodden out by the feet of the natives, a rough separation of the starchy from the woody matter being thus effected, the former running off with the water into the trough below, while the

latter remains on the mat and is thrown away or used as food for pigs. The sago, known then as *Lamunta* (raw), is sold to the Chinese, by whom it undergoes further cleaning by means of frequent hand-washing in troughs, and is then packed in gunny bags and exported to Singapore. There it is either converted into the pearl sago sold in the shops, or is sent direct to Europe as flour for use in sizing cloth, the manufacture of beer, preparation of confectionery, &c.

A full-grown tree is said to produce 200 to 300 lbs. of sago flour. The sago flour, boiled into a paste (*boyat*), is largely used as food in the place of rice in the districts where it flourishes, but rice, when it can be afforded, is preferred.

If the palm is allowed to flower and seed, the pith of the centre is found to be dried up and useless, and the tree dies.

The seeds are often unproductive, but each palm gives out numerous offshoots, which take the place of the parent tree, and themselves in turn leave a family of offshoots, so that a sago plantation once started, practically, "goes on for ever."

Sago grows vigorously everywhere in suitable damp localities. Prices have declined in the last few years, but are never likely to go so low that it would not pay to grow it in picked situations in North Borneo: situations that is, affording the best facilities for transport from the place of growth to the manufactory, and from thence to the export steamer; while as sago is a favourite article of diet amongst many of the inhabitants of North Borneo, a considerable and increasing quantity will always be required for local consumption.

The following extracts from a pamphlet on sago growing, by Mr. W. M. Crocker, will show how comparatively inexpensive its cultivation is, and what the profits are.

"It may give some idea of the enormous rate of this produce if it be considered that *three trees* yield more nutritive matter than an acre of wheat, and six trees more than one acre of potatoes. A single tree will supply 600 lbs. of food." His estimate for planting and bringing to maturity a plantation of 500 acres is \$18,880, which includes upkeep, care and interest for ten years, after which "the plantation

should continue to yield a profit of from \$15,000 to \$20,000 yearly." "As each parent tree is surrounded with young ones which ripen in due succession, a sago plantation once made will never be exhausted ;" returns, however, should begin to come in six or seven years, and not ten ; but the chief objection to sago planting is undoubtedly the length of time that elapses before the plantation is in full bearing.

Tapioca is much cultivated by the natives ; and some of the tubers more particularly those from the Kina Batangan, are of immense size. Should there be any permanent rise in price of tapioca, it can probably be cultivated at a lower cost in North Borneo than elsewhere.

Cinnamon grows wild in North Borneo.

Cotton, *Sapan wood*, *Nutmegs* and *Citronella grass* are all under trial, and seem to do very well. Wild nutmeg trees are found growing in the forest.

Indigo.—What little has been tried seems to do very well ; there are immense stretches of flat land suitable for its cultivation.

Ginger is cultivated with great success in some Chinese gardens.

Fruits occur in great abundance in the forests ; in a good fruit season it is astonishing what a lot of fruit trees are apparent ; wild duriens, rambutans, pulusans, langsats, lychees, mata kuchings, &c., abound, and the smell of various sorts of wild mangoes is scarcely to be avoided. Some few of these may become available for export in time ; duriens, for instance, would undoubtedly sell well in Hong Kong if fast steamer communication could land them there in good condition ; and a sort of nut known as the Buah mytas, something resembling the Brazil nut, abounds in the forest in some seasons, and might be utilised ; but the enormous quantities of other fruits that fall to the ground yearly are more likely to continue to fatten orangutans, monkeys, elephants, rhinoceroses, squirrels and pigs than to be turned to any more profitable account.

From the foregoing remarks it will be seen that British North Borneo is unusually rich in natural products, and that the only thing needed to develop these riches is an increased population. It is also to be noted that however

large the population may grow, so enormous is the supply of many of these articles of commerce, that instead of working them out, the only result is likely to be an ever increasing outpour.

Native Agriculture.—Maize, paddy, bananas, sweet potatoes, &c. The system of cultivation carried on by the natives is only capable of being conducted in a wonderfully fertile country. A piece of ground is selected, usually one that has undergone the same treatment a few years previously, the felling and clearing is conducted in the usual manner, after which Indian corn and paddy are planted simultaneously. Ploughs and hoes are quite unknown (except in some of the more thickly populated districts on the west coast), and not a clod is turned over ; the mode of operation is for a man and a woman to walk one behind the other, the man in front, dibbling a hole with a sharpened stick, into which the other drops one or two seeds, and then scratches a little earth over the hole with her toes. In this manner a large field is very soon planted up with two crops without any lengthened operations. In seven or eight weeks the corn is ready to pull, the paddy in the intermediate lines between the corn being rather poor looking in consequence of being overshadowed by its long stalks ; as soon as the corn is cleared off however, the paddy rapidly springs up, and in two months more it too is ready for cutting. During the time the paddy is coming to maturity the fields require weeding three times. In some cases, while the paddy is but half grown, tapioca cuttings are planted, which are getting their feet under them while the paddy is ripening ; in all cases no sooner is the paddy cut than something else is coming on, either tapioca, kaladi, or what not ; before such crops as the last named are ripe, banana suckers and sugar cane are planted. The ground being cleared of the tapioca, sweet potatoes are put in round the bananas, no further weeding is undertaken, and the sweet potatoes are left to fight it out with the grass ; as soon as the potatoes begin to ripen, the yield is continuous, but when the weeds finally get the mastery, the people desert that place and make a new start somewhere else, as they consider it less trouble to fell, burn and clear a new site (the burning destroying all the grass

germs there) than to continuously combat the grass. This habit of working hard by fits and starts, in preference to using continued slight effort, is very typical of the Malay character.

All the operations are conducted in the most primitive manner, the wood knife or parang being the only instrument used ; this is thrust in the ground in a slanting direction two or three times, and it is never thrust in three times if there is any hope of two thrusts being sufficient ; the amount of earth turned over is rarely more than a handful, and the slip of tapioca, sugar cane, or whatever it may be, is stuck in the hole and left to take care of itself, and such a thing as a failure is practically unknown. Such a proceeding as turning over the whole ground is undreamt of. Sweet potatoes are planted from slips of the tops, not from portions of the tuber, as with our potatoes.

These operations occupy a term of two years or so, during which time crops of one sort or another are following each other in quick succession, and without intermission. Paddy they store up, but nothing else ; and from year's end to year's end, whatever else they require for the day's consumption, they send into the fields and fetch. When moving to a place at some little distance, operations are begun there while the old potato fields are still yielding fairly well, and they draw their supplies of them from the old place, while the paddy is ripening at the new one.

So prolific is nature that six houses (huts) crowded with inhabitants, in a space of under two acres in extent, on the Kina Batangan, have been known to draw their entire subsistence, day after day, out of this little lot.

In consequence of the ease with which food is obtained, the people are very lazy ; food is always within their reach ; their houses are flimsy in the extreme, made by the family of materials always ready to hand ; clothes are very scanty ; furniture there is none ; coal, taxes, lights, wages, &c., the items which make up the chief expenses of a household in Europe, are unknown, so that the natives get such habits of laziness ingrained into them, that they let their houses get filthy to a degree, and but rarely trouble themselves even to catch fish or raise chickens as a change to their vegetable diet.

Notwithstanding the little exertion they put themselves to, the result in crops is very large, and the price of many things is very cheap in consequence. Indian corn, for instance, is at times obtainable in barter at prices equivalent to as many as 2,000 heads for a dollar, or about 1s. per bushel on the average.

CHAPTER VIII.—FORM OF GOVERNMENT, ETC.

The Government of the Colony is administered by a Governor with the assistance of a Colonial Secretary, under whom are two Residents of Districts, several Assistant Residents, as well as Treasury, Land and Survey, Public Works, Harbour, Medical, Judicial, and Constabulary Departments. The Judicial Department includes the Governor, who is the chief judicial officer of the Supreme Court and High Court of Appeal; the Residents, who are judges of Sessions and Appeal Courts and Magistrates of Districts; as well as several other Magistrates and Small Cause Judges; and Justices of the Peace.

The Indian Penal Code has been adopted almost in its entirety, as well as the Indian Civil Procedure and Evidence Acts. Several other proclamations are based upon Acts current in Fiji; the land regulations are in great part adapted from the well-known Torrens Act, title being based upon registration. The North Borneo Government is bound to respect the rights and customs of the natives, the principal one of which is slavery; but means have been taken to put an end to this institution, which is rapidly dying out. A Legislative Council, including the higher officers of the Government and the leading native chiefs, is nominated.

The Government looks to the native chiefs and headmen to maintain order within their districts, and so effectively is this done that few true aborigines of Borneo ever appear in any capacity before European magistrates. The police force includes about a hundred and fifty men, under a Captain Commandant; a large proportion of these men are

Sikhs, the rest are Somalis from Africa, Brunei Malays, Dyaks, &c.

As regards the feelings of the natives towards the new Government, experience shows that as soon as it gets into direct contact with them they are most friendly disposed towards it, and welcome a mode of Government which relieves them from oppressive and irregular taxation. But the aim of some of the Malays of the coast is to prejudice the natives against it by false accounts of the mode of rule, whereby they have been induced to attack members of tribes who have accepted the new *regime*; and it has then been necessary for the Government to punish them by force of arms, the result being the establishment of friendly relations with the conquered tribes, who soon recognise the error into which they have been led.

The sources from which the revenue is drawn consist chiefly of the licences for purchasing and retailing opium for smoking, for the sale of spirits, and other exciseable articles, all of which are farmed out to private individuals; 10 per cent. royalty on jungle produce exported; a poll tax, an old established source of revenue among the natives, in lieu of land taxes, and a stamp duty. The land revenue comprises the proceeds of sales of public lands, quit rents, and fees on transfers. There are, in addition, judicial fees and post office stamps; these, and a few miscellaneous items, make up the remaining sources of revenue.

SPORT, NATURAL HISTORY, ETC.

The difficulty of obtaining good big game shooting anywhere over the whole world is always increasing. The shooting ground is always receding; bison in America may be regarded as finished; the difficulty and expense of obtaining a good bag in India is yearly growing greater; while Africa has almost ceased to be a large game-shooting country at all, except to a select few; so that the finding of an extensive district in North Borneo well stocked with big game is quite a boon to the sportsman.

The large animals found are elephant, rhinoceros, buffalo, deer, pig, bear, and orangutan. The older visitors

and encyclopedists always spoke of the elephant as an inhabitant of the north-east of Borneo, but so few travellers visited that part, that this fact was gradually lost sight of, and so recently as eight years ago the existence in Borneo of the elephant at all was denied; there is no doubt, however, but that it and the rhinoceros are both indigenous to the island.

No elephant has yet been bagged by a European. Frank Hatton had shot at and wounded one on the occasion when he met with his fatal accident, and one or two others have been shot at from time to time. Europeans, when they go into the forest, are usually on business—exploring, path cutting, surveying, and the like—and the noise made by the number of coolies and carriers that accompany them frightens all game away; traces, however, are very common, and it is difficult to penetrate into the forest anywhere without seeing the huge round footprints of elephants and the smaller track of the rhinoceros with its three distinct toemarks. The natives occasionally shoot elephants, and one or two of their tusks are generally on sale in the Bazaar. They usually fetch a rather high price, and are sent over to Sooloo to be converted into creese handles. The proportion of tuskers may be taken to be about one in four; of four elephants that some Booloodopies shot at Terruttum (in Dewhurst Bay), one only was a tusker; out of a herd of five that were met on the Batang Ypel path two were tuskers.

They frequently move about in large herds. In some places the country for over a mile has been found everywhere covered with their footprints, denoting the presence of a herd that may be estimated at a hundred at least. *Rencontres* with them in the forest are not unfrequent, and generally give rise to some ludicrous incident, the fright usually being mutual. Mr. Pryer, the Resident of the East Coast, relates that on one occasion a tusker ran in amongst a whole line of birds' nest collectors carrying rattan ladders, provisions, &c., to the Madai Caves; there was a wild casting away of all their baggage, while the elephant, no less alarmed, rushed off at full speed, upsetting some of them. He was within a couple of hundred yards, but only appeared on the scene in time to find all his followers up

in the trees like a flock of large monkeys. On another occasion, camping out in the forest, in a little lean-to, with his men all close by, he was awakened by an elephant grumbling away to himself within a few feet of his head, having almost overrun him in the dark and evidently cogitating as to what the strange smell was which had brought him up. The after occurrences were somewhat singular. Mr. Pryer roused the men and fired rifles, with the result that while the elephant remained quite silent, a peculiar noise from a tree close by announced the presence of an orangutan there, which the men thought must have been mistaken for an elephant; but immediately afterwards a large forest tree fell down with a tremendous crash, which was too much for the elephant; off he went, trumpeting loudly, evidently with a wholesome fear of people who could throw large forest trees about. What caused the tree to fall down was not known, but it may have been that, already rotten, the movements of the orangutan in it when the firing took place may have had something to do with its fall. The fresh tracks of nearly twenty elephants were found close by.

A plantation of *Musa textilis* (the Manila hemp banana) on the Sebooga river, not ten miles from Sandakan, temporarily abandoned, was completely eaten out by elephants, and their tracks are sometimes seen even closer to the town than this; should a proper shooting party be organised, a fortnight's journey in the forest would certainly enable them to bag several elephants.

Near Port Elphinstone, elephants are quite a nuisance, frequently destroying the natives' tapioca plantations. The district in which they range seems to be for some reason sharply defined, as although abundant there, a few miles further south they are quite unknown; the same thing also occurs to the northward, for though abundant near the mouth of the Labuk, they are unheard of in its interior.

The rhinoceros (*Rhinoceros Sumatranus*) is to be found over much the same ground as the elephant, and is rather more often seen than it; for although there are not so many of them, it does not seem to be so timorous and ready to take alarm, and they are not unfrequently shot by the natives.

They come closer to the towns than elephants do, and have more than once strayed inside the suburban line of Sandakan itself ; on one occasion one went into a garden in the outskirts of the town and ate some melons ; on another, one managed to get into a chicken-house on the Beatrice estate, and when a man went with a light to see what it was, it rushed through the other side carrying away part of the fencing with it ; on still another occasion, one came in from the forest and trotted past Mr. Pryer's house into town in the middle of the night, but not liking the lights, came back again and went down a gully at the back of the house and not 70 yards off, where it made a great noise, while he and his wife stood in the verandah with a rifle, thinking that it might charge at the house, or something.

Next in importance to elephants and rhinoceroses, buffaloes take rank. It is still uncertain how many species there are ; the one commonest on the east coast, and known by the natives as Lissang or Seladong, is, most probably, *Bos Banting*. It is said that its place is taken on the west coast by *Bos Gaurus*, there called the Tambadau, but Mr. Pryer has never seen any horns that could be identified as those of *B. Gaurus*, while the people of the west coast freely apply the same name, tambadau, to what the people of the east coast call the lissang. Some of the horns shown differ so much from others that they seem to indicate that there are two species, but the exact localities from which the different horns were obtained are not given. It is also averred that there is a species of wild cattle found at the mouth of the Kina Batangan river ; this is likely, but there is not sufficient evidence to say that it is certain.

Wherever over the whole country clearings have been deserted and become overgrown with grass, tracks of buffaloes are very abundant. At Segaliud hundreds of tracks have been seen in a four acre space, and in many other places where there is open ground, their tracks quite puddle up the soil. On one occasion, stalking a large herd on the Kina Batangan beach, Mr. Pryer was noticed by them, and the old bull, a grand animal, trotted forward, jumped on a hillock, and stood sideways, looking and lashing his tail, while the rest ran behind him into the forest. Mr. Pryer was over long in admiring him, but was

just adjusting the sights upon him when he jumped off the mound and disappeared.

Of deer three kinds are known—the sambur (*Rusa Aristotelis*), the kejang (or roe), and the mouse deer, or chevrotain. These are all three fairly and evenly distributed over the country and in no inconsiderable numbers. As to the sambur, on the sea beach at sundown, always a good time and place for game, six have been counted within twenty minutes when rowing by; and once at Timba Mata seven were bagged in three hours. The evening before, one which had been driven into the sea was followed by the steamer, noosed, and hoisted on board. On a plain near Kudat the sambur is sometimes hunted with horses and dogs, and affords capital sport.

The kejang is a pretty little deer, about the same size as an English roe; it seems to prefer the neighbourhood of clearings rather than the true forest, and when disturbed gives a somewhat loud bark or shout.

Mouse deer, if it were not for the name, might well be classed with small game, as they are about the size of hares. They are usually to be seen about the banks of rivers, and edges of swamps and open places.

Wild pigs are of all sizes and several colours, some grey, some dirty white, and some red. It is by no means the biggest which have the largest tusks, but some of them have enormous ones. The whitish kind have heads considerably shorter than those of the ordinary wild pig, and have a thick layer of fat inside the skin. These are first-rate eating, and probably descended from a foreign ancestry. The best way to hunt pigs is with dogs and knives or spears, this is far better fun than shooting them. It is to be noticed, however, that it is rarely that the big ones or tuskers are brought to bay by the dogs, who are usually very clever little native ones, and have a very good idea of taking care of themselves. Bull dogs have often been imported at considerable expense and tried, but they very soon get killed or dreadfully mauled. With a pack of little native dogs, twelve or fifteen pigs have sometimes been bagged in the immediate neighbourhood of Sandakan, as the result of a three hours' hunt. The biggest number obtained in a day was eighteen.

The orangutan should not properly be spoken of as game at all ; all the same, few people seeing one can resist the temptation of having a shot at it. There are two species, one large and one small ; the largest one sometimes attains a height of four feet six inches, and has large black collops on each side of its face, which, added to the way it blows its throat out when excited, gives it a most ferocious, almost demoniacal, appearance, which stuffed specimens quite fail to convey. It is in reality very harmless, however, although it would no doubt exert its vast strength in self-defence if driven to do so. Anything like a full-grown specimen of the large kind is hardly ever seen in captivity. The smaller species is easily tamed and is mild and pleasant, domesticated even ; will take your hand and come for a walk without any thought of escape, and has no trace of vice, its only unpleasant feature being that, unaware of its own weight and strength, it is continually pulling things over and smashing them.

They have considerable attachment or affection for each other, and keep together in little families of father, mother, and child, in the forest, and if the female is menaced by any danger the male comes to her assistance. On one occasion that Mr. Pryer saw this occur, the men had fired at and wounded a female who was trying to help her child to escape, when the male came from some distance behind to assist her, and was shot too.

Bears occur but sparingly. They nearly always run away, but are invariably in a very bad temper at having to do so, roaring in an extremely aggravated way. The scientific name of the Bornean bear is *Helarctos euryspilus* ; it is little if anything bigger than a large retriever, but has uncommonly large claws.

It is said that the tapir is found in Borneo, but no traces of it have been found in British North Borneo. The clouded tiger (*Felis macrocelis*), and the marbled leopard (*Leopardus marmoratus*), both occur, but are comparatively insignificant little brutes, besides being very rare.

In addition to the above, there are a host of smaller animals, of more interest to the naturalist than the sportsman. Of monkeys alone there are about a dozen different species, whilst of others there are civet cats, musangs,

binturongs, otters, armadillos, porcupines, squirrels, ordinary and flying ones, insectivora, some of them handsome animals like large squirrels: the best known of them, the gymnura, like a large white rat with a pig's snout, tainting the whole neighbourhood with its strong rancid smell; the curious flying gymniopethecus; bats of many kinds, including the large fruit-eating so-called flying fox; the telledu or mydaus, which in Java and Sumatra is never found at a less elevation than five thousand feet, here occurs at sea level; the slow loris, and many others.

The crocodile is undoubtedly the most ferocious of the wild creatures, and fatal attacks by it are by no means uncommon. The people of one village, Sebongan, on the Kina Batangan, had to remove entirely away from the neighbourhood, as so many of them were carried off by crocodiles: knocked out of boats, or taken when bathing or getting water. On the Labuk river also there was a place where passing boats were frequently attacked. On one occasion two crocodiles made a simultaneous attack on a canoe with five men in it, knocked it over, and each one carried off a man. People of Malay race are so apathetic and so unfertile in resource that they seem unable to make any continued effort to combat such a state of things, but where Europeans settle, matters are soon changed. The erection of fish stakes, or keelongs as they are called, soon results in the capture of all the crocodiles in the neighbourhood.

The Sundyaks (Dusuns of the east coast) eat crocodiles, consequently there are very few left in the rivers they inhabit. Their mode of catching them is as follows: for bait a dead monkey or some similar animal is bound to a stick, all along the stick are tied lengths of fishing line, which are brought together about seven or eight feet off and made fast to the end of a rattan, which is some seventy or eighty feet in length. The bait is then thrown into the river at a likely place, the other end of the rattan being slightly secured, usually to an overhanging branch; the crocodile is thus able to take the bait, swim off with it in his mouth to some distance and there swallow it at his leisure, not suspecting that anything is wrong. The Sundyaks come round next morning, and finding the rattan

gone from its place, search along the river for it, until it is seen floating in the stream. This denotes that the reptile is below, slowly digesting the bait, which until now has remained, stick and all, lengthways in its stomach ; the end of the rattan is seized from a canoe, and a smart jerk draws the stick "athwart ship," so to speak, in the stomach, and then a fine struggle ensues. As soon as possible the rattan is passed to the shore, or the canoe may get upset, but sooner or later the crocodile is hauled to the bank and killed ; but if it is twelve feet in length or more, it takes a lot of men to land the brute, and the whole scene is most exciting.

Large pythons are occasionally seen in the forest ; gutta hunters have sometimes spoken of some they have met which could not have been less than from twenty to thirty feet long, and a native headman had a story of one which must have been even longer ; there is no record of anybody being injured by a large (or any other) snake in North Borneo.

Snakes are not at all common, and poisonous ones form a very small percentage of those which are seen. Monitor lizards sometimes occur near chicken houses, but though somewhat formidable looking, are quite harmless.

Small game can be hardly said to exist, Argus pheasants, fireback pheasants and partridges are not uncommon in the forest, but never rise, and beyond a few pigeons there is no sport for the shot gun.

Fishing offers a large field for future development, fish of all kinds being most abundant. It is customary when travelling in a steam launch to let out a strong line astern, the last 40 feet or so of it being stout brass wire terminating in a strong large hook, the only bait is a piece of white rag ; a hitch is taken in the inboard part of the line and tied with string, with a bell attached ; when a fish takes the hook, the jerk breaks the string, and rings the bell ; there is an immediate rush of everybody near, and it frequently takes three men if not more to haul in the prize, usually an ikan tingirri, a fine large pike-like fish, very good eating ; dolphins and even sword fish are sometimes caught, while it not unfrequently happens that some monster breaks the line altogether.

EUROPEAN LIFE.

In Sandakan, the capital, there is a temporary church, a club, two hotels, several stores, including a European one, Government offices, gaol, barracks, a fish and general market, hospital, a saw mill, lawn tennis grounds, and many other matters bespeaking advancing civilization. The town is lighted by oil lamps, and there is even a temporary race course. The Chinese have their joss house, and the Mahomedans their mosque.

Beef is usually to be had once or twice a week ; pork is plentiful, though as yet somewhat dear ; mutton is rarely procurable except after the calling of a steamer from Australia ; fish are in plentiful supply, of extremely good quality, and very cheap ; chickens however are the main article of diet, and ducks and geese are fairly common ; vegetables, pineapples, and bananas are always to be had ; and oranges, mangoes, duriens, and other fruits are growing more plentiful. Amongst the vegetables are sweet potatoes, ubi busar (a sort of yam which frequently attains a weight of 50 lbs.) ; green ginger (which also is of large size) ; young corn, Kaladi (the root of a caladium, which yields a vegetable not unlike the potato) ; cucumbers, brinjals, tomatos, a sort of turnip radish, long beans, various kinds of lettuces and cabbages, all more or less unsatisfactory ; pumpkins, chillies, bamboo sprouts, patula, and many others. Very good cabbages are occasionally received from China, and potatoes from Java and elsewhere are always to be bought at about three pence a pound.

Though one of the hotels is built of brick, most of the Europeans live in houses whose sides and roofs are made of palm leaves, though the floors are of plank. Such houses as these are very cheap, and cooler to live in than brick-built ones ; white clothes, usually made of duck, are worn all the year round. There are some few ponies, but no carriages as yet.

The weather is always cool at night all the year round,

so much so that some covering is always needed in bed ; the mornings are very pleasant : up till about nine o'clock or half past the temperature is delightful. In the afternoons it is generally hot, the heat however is usually tempered by a cool breeze. Owing to sleep being always possible at night, the health of the community is remarkably good, and no diminution is felt either in strength or energy.

Communication with the outside world is fairly frequent. The Customs returns show that 92 entries of steamers were registered at the Harbour Office during the year 1885. Most of these came from Singapore and the surrounding islands. Three lines of steamers run between Australia and China, and Sandakan being situated nearly mid-way between these two countries, they will no doubt be induced to call in as trade increases.

It must be clearly understood by persons intending to visit British North Borneo for business purposes, that they should provide themselves with sufficient capital for the prosecution of operations (planting, timber cutting, &c.) on their own account ; there are comparatively so few enterprises at present being carried on, that there would be little or no chance of employment being obtained in any of them.

CHARTER OF THE BRITISH NORTH BORNEO
COMPANY.

VICTORIA, by the grace of God, of the
United Kingdom of Great Britain
and Ireland Queen, Defender of the
Faith.

To all to whom these presents shall come
Greeting.

WHEREAS an Humble Petition has been presented to Us in Our Council by Alfred Dent, of 11, Old Broad Street, in the City of London, Merchant; the British North Borneo Provisional Association, Limited; Sir Rutherford Alcock, of 14, Great Queen Street, in the City of Westminster, Knight Commander of Our Most Honourable Order of the Bath; Richard Biddulph Martin, of 68, Lombard Street, in the City of London, Banker, a Member of the Commons House of Parliament; Richard Charles Mayne, Companion of Our Most Honourable Order of the Bath, a Rear-Admiral in our Navy; and William Henry Macleod Read, of 25, Durham Terrace, in the County of Middlesex, Merchant.

And whereas the said Petition states (among other things) to the effect that on the 29th day of December, 1877, the Sultan of Brunei, in the Island of Borneo, made and issued to the Petitioner Alfred Dent and another, or one of them, three several grants of territories, lands, and islands therein mentioned, and a commission.

And whereas the said Petition further states that by the first of the grants aforesaid the Sultan of Brunei granted to the grantees co-jointly their heirs associates successors or assigns all the territory and land belonging to the Sultan on the West Coast of Borneo comprising Gaya Bay from Gaya Head to Loutut Point including Sapangar Bay and Gaya Bay and Sapangar Island and Gaya Island and all the other islands within the limits of the harbour and within three marine leagues of the coast, likewise the province and territory of Pappar adjoining the province of Benoni and belonging to the Sultan as his private property ; and in consideration of that grant the grantees promised to pay severally and co-jointly to the Sultan his heirs or successors the sum of four thousand dollars per annum ; and by that grant the said territories were from the date thereof declared vested in the grantees their heirs associates successors or assigns for so long as they should choose and desire to hold them ; provided however that the Sultan should have the right to resume the control and government of the said territories if the above-mentioned annual compensation should not have been paid for three successive years.

And whereas the said Petition further states that by the second of the grants aforesaid the Sultan of Brunei granted to the grantees co-jointly their heirs associates successors or assigns all the territories belonging to the Sultan from the Sulaman River on the north-west coast of Borneo unto the River Paitan on the north-east coast of the island containing twenty-one states together with the island of Banguey and all the other islands within three marine leagues of the coast for their own exclusive uses and purposes ; and in consideration of that grant the grantees promised to pay severally and co-jointly to the Sultan his heirs or successors the sum of six thousand dollars per annum ; and by that grant the said territories were from the date thereof declared vested in the grantees their heirs associates successors or assigns for so long as they should choose to hold them ; provided however that the Sultan should have the right to resume the control and government of the said territories if the above-mentioned

annual compensation should not have been paid for three successive years.

And whereas the said Petition further states that by the third of the grants aforesaid the Sultan of Brunei granted to the grantees their heirs associates successors or assigns all the following territories belonging to the kingdom of Brunei and comprising the States of Paitan, Sugut, Bangaya, Labuk, Sandakan, Kina Batangan, Mumiang, and all the territories as far as the Sibuco River with all the islands within three leagues of the coast belonging thereto for their own exclusive and absolute uses and purposes; and in consideration of that grant the grantees promised to pay co-jointly and severally as compensation the sum of two thousand dollars per annum; and from that date the said territories were thereby declared vested in the grantees their heirs associates successors and assigns for so long as they should choose or desire to hold them; provided however that the Sultan should have the right to resume the control and government of the said territories if the above-mentioned annual compensation should not have been paid for three successive years.

And whereas the said Petition further states that by the commission aforesaid, after reciting to the effect that the Sultan of Brunei had seen fit to grant to his trusty and well-beloved friends the grantees certain portions of the dominions owned by him comprising the entire northern portion of the island of Borneo from the Sulaman River on the west coast to Maludu Bay and to the River Paitan and thence the entire eastern coast as far as the Sibuco River, comprising the States of Paitan, Sugut, Bangayan, Labuk, Sandakan, Kina Batangan, and Mumiang, and other lands as far as Sibuco River furthermore the provinces of Kimanis and Benoni, the province of Pappar, and the territory of Gaya Bay and Sapangar Bay with all the land and islands belonging thereto and likewise the island of Banguay for certain considerations between them agreed, and that one of the grantees therein in that behalf named was the chief and only authorized representative of his Company in Borneo; it was declared that the Sultan had

nominated and appointed and thereby did nominate and appoint the same grantee supreme ruler of the above-named territories with the title of Maharajah of Sabah (North Borneo) and Rajah of Gaya and Sandakan with power of life and death over the inhabitants with all the absolute rights of property vested in the Sultan over the soil of the country and the right to dispose of the same as well as the rights over the productions of the country whether mineral vegetable or animal with the rights of making laws coining money creating an army and navy levying customs rates on home and foreign trade and shipping and other dues and taxes on the inhabitants as to him might seem good or expedient together with all other powers and rights usually exercised by and belonging to sovereign rulers and which the Sultan thereby delegated to him of his own free will; and the Sultan called upon all foreign nations with whom he had formed friendly treaties and alliances to acknowledge the said Maharajah as the Sultan himself in the said territories and to respect his authority therein; and in case of the death or retirement from office of the said Maharajah then his duly appointed successor in the office of supreme ruler and governor-in-chief of the Company's territories in Borneo should likewise succeed to the office and title of Maharajah of Sabah and Rajah of Gaya and Sandakan and all the powers above enumerated be vested in him.

And whereas the said Petition further states that on the same day the Pangeran Tumongong (Chief Minister) of Brunei made to the same two persons their heirs associates successors or assigns a grant of the provinces of Kimanis and Benoni on the north-west coast of Borneo with all the islands belonging thereto within three marine leagues of the coast the said territories belonging to him as his private property to hold for their own exclusive and absolute uses and purposes; and in consideration of that grant the grantees promised to pay as compensation to the Pangeran Tumongong his heirs or successors the sum of three thousand dollars per annum; and the said territories were thereby declared vested in the grantees their heirs associates successors or assigns for so long as they should

choose or desire to hold them ; and they further promised to protect the Pangeran Tumongong with kindness.

And whereas the said Petition further states that on the 22nd day of January, 1878, the Sultan of Sooloo and the dependencies thereof (in the said Petition and in this Our Charter referred to as the Sultan of Sooloo) made and issued to the same two persons, or one of them, a grant of his rights and powers over territories lands states and islands therein mentioned, and a commission.

And whereas the said Petition further states that by the last-mentioned grant the Sultan of Sooloo on behalf of himself his heirs and successors and with the consent and advice of the Datoos in Council assembled granted and ceded of his own free and sovereign will to the grantees as representatives of a British Company co-jointly their heirs associates successors and assigns for ever and in perpetuity all the rights and powers belonging to the Sultan over all the territories and lands being tributary to him on the mainland of the island of Borneo commencing from the Pandassan River on the north-west coast and extending along the whole east coast as far as the Sibuco River in the south and comprising amongst others the States of Paitan, Sugut, Bangaya, Labuk, Sandakan, Kina Batangan, Mumiang and all the other territories and states to the southward thereof bordering on Darvel Bay and as far as the Sibuco River with all the islands within three marine leagues of the coast ; and in consideration of that grant the grantees promised to pay as compensation to the Sultan his heirs or successors the sum of five thousand dollars per annum ; and the said territories were thereby declared vested in the grantees co-jointly their heirs associates successors or assigns for as long as they should choose or desire to hold them ; provided however that the rights and privileges conferred by that grant should never be transferred to any other nation or company of foreign nationality without the sanction of Our Government first being obtained ; and in case any dispute should arise between the Sultan his heirs or successors and the grantee therein in that behalf specified or his Company the matter should be submitted to Our Consul-General

for Borneo ; and that grantee on behalf of himself and his Company further promised to assist the Sultan his heirs or successors with his best counsel and advice whenever the Sultan might stand in need of the same.

And whereas the said Petition further states that by the last-mentioned commission, after reciting to the effect that the Sultan of Sooloo had seen fit to grant unto his trusty and well-beloved friends the grantees certain portions of the dominions owned by the Sultan comprising all the lands on the north and east coast of the Island of Borneo from the Pandassan River on the north-west to the Sibuco River on the east coast including amongst others the states of Paitan, Sugut, Bangaya, Labuk, Sandakan, Kina Batangan, and Mumiang, and all the lands and territories in Darvel Bay as far as the Sibuco River together with all the islands belonging thereto for certain considerations between them agreed, and that one of the grantees therein in that behalf named was the chief and only authorized representative of his Company in Borneo, it was declared that the Sultan of Sooloo had nominated and appointed and thereby did nominate and appoint the same grantee supreme and independent ruler of the above-named territories with the title of Datu Bandahara and Rajah of Sandakan with absolute power of life and death over the inhabitants of the country with all the absolute rights of property over the soil of the country vested in the Sultan and the right to dispose of the same as well as the rights over the productions of the country whether mineral vegetable or animal, with the rights of making laws coining money creating an army and navy levying custom dues on home and foreign trade and shipping and other dues and taxes on the inhabitants as to him might seem good or expedient together with all other powers and rights usually exercised by and belonging to sovereign rulers and which the Sultan thereby delegated to him of his own free and sovereign will ; and the Sultan called upon all foreign nations with whom he had formed friendly treaties or alliances, and he commanded all the Datoos Nobles Governors Chiefs and People owing allegiance to him in the said territories, to receive and acknowledge the said

Datu Bandahara as supreme ruler over the said States and to obey his commands and respect his authority therein as the Sultan's own ; and in case of the death or retirement from office of the said Datu Bandahara then his duly appointed successor in the office of supreme ruler and governor-in-chief of the Company's territories in Borneo should likewise if appointed thereto by the Company succeed to the title of Datu Bandahara and Rajah of Sandakan and all the powers above enumerated be vested in him.

And whereas the said Petition further states that all the interests and powers of the grantees under the several grants and commissions aforesaid came to be vested in the Petitioner Alfred Dent.

And whereas the said Petition further states that the Petitioner Alfred Dent and his associates from time to time of necessity expended large sums of money and made great exertions in and about procuring the grants and commissions aforesaid and putting them into use and discharging the obligations arising thereunder.

And whereas the said Petition further states that the Petitioner The British North Borneo Provisional Association, Limited, consists of persons who lately agreed to join together for the temporary purposes of acting as intermediaries between the Petitioner Alfred Dent, on the one hand, and a Company to be incorporated (if We should so think fit) by Royal Charter, on the other hand, and of carrying on until the grant of such a Charter the management of the affairs arising under the grants and commissions aforesaid, and who, for convenience of common action and for limitation of liability, have incorporated themselves under the general Statutes relating to companies, that Provisional Association having for its objects as declared by its Memorandum of Association (among others) the following (that is to say):

To purchase from Alfred Dent his interest and powers in over and affecting territories, lands, and property in Borneo, and islands lying near thereto, including Labuan.

Treatment of Inhabitants, generally.

10.—If at any time Our Secretary of State thinks fit to dissent from or object to any part of the proceedings or system of the Company relative to the people of Borneo, or to any of the inhabitants thereof, in respect of slavery or religion or the administration of justice or other matter, and to make to the Company any suggestion founded on that dissent or objection, the Company shall act in accordance therewith.

Jurisdiction over British Subjects and in Mixed Cases.

11.—In case at any time We think fit to make provision by Order in Our Council for the exercise and regulation of Our extra-territorial jurisdiction and authority in Borneo, and to appoint any of the Company's officers to discharge judicial or other functions thereunder in Our name, then and so long the Company shall provide all court-houses and establishments necessary or proper in that behalf, and bear all expenses of the exercise of the jurisdiction or authority which those officers are so appointed to exercise.

Facilities for British National Ships.

12.—The Company shall freely afford all facilities requisite for Our ships in the harbours of the Company.

Appointment of Company's principal representative.

13.—The appointment by the Company of the Company's principal representative in Borneo shall always be subject to the approval of Our Secretary of State.

Flag.

14.—The Company may hoist and use on its buildings and elsewhere in Borneo and on its vessels such distinctive flag indicating the British character of the Company as Our Secretary of State and the Lords Commissioners of the Admiralty from time to time approve.

General Powers of Company.

15.—The Company is hereby further authorized and empowered:

(i.) To acquire and take by purchase cession or other lawful means, other interests or powers in, over, or affecting the territories, lands, or property comprised in the several grants aforesaid, or any interests or powers whatever in over or affecting other territories, lands, or property in the region aforesaid; and to hold, use, enjoy, and exercise the same for the purposes and on the terms of this Our Charter.

(ii.) To improve, develop, clear, plant and cultivate any territories and lands comprised in the several grants aforesaid, or otherwise acquired under this Our Charter.

(iii.) To make and maintain therein roads, harbours, railways, telegraphs, and other public and other works, and carry on therein mining and other industries.

(iv.) To settle any such territories and lands as aforesaid and to aid and promote immigration into the same.

(v.) To grant any lands therein for terms or in perpetuity absolutely or by way of mortgage or otherwise.

(vi.) To make therein exclusive or other concessions of mining forestal or other rights.

(vii.) To farm out for revenue purposes the right to sell in the Company's territories spirits tobacco opium salt or other commodities.

(viii.) To make loans or contributions of money or money's worth for promoting any of the objects of the Company.

(ix.) To acquire and hold or charter or otherwise deal with steam-vessels and other vessels.

(x.) To acquire and hold any personal property.

(*xi.*) To deal in merchandise, the growth produce or manufacture of the Company's territories, or other merchandise.

(*xii.*) To carry on any lawful commerce trade or dealing whatever in connection with any of the objects of the Company.

(*xiii.*) To establish and maintain agencies in Our Colonies and Possessions and elsewhere.

(*xiv.*) To act as agent in the region aforesaid for any other Company or body or any person.

(*xv.*) To sue and be sued by the Company's name of incorporation as well in Our Courts in Our United Kingdom, or in Our Courts in Our Colonies or Possessions, or in Our Courts in foreign countries, as elsewhere.

(*xvi.*) To take and hold, without licence in mortmain or other authority than this Our Charter, messuages and hereditaments in England and in any of our Colonies or Possessions and elsewhere, convenient for carrying on the management of the affairs of the Company, and to dispose from time to time of any such messuage and hereditaments when not required for that purpose.

(*xvii.*) To do all lawful things incidental or conducive to the exercise or enjoyment of the authorities and powers of the Company in this Our Charter expressed or referred to or any of them.

Questions of Title.

16.—If at any time Our Secretary of State thinks fit to object to the exercise by the Company of any authority or power within any part of the territories comprised in the several grants aforesaid, or otherwise acquired under this Our Charter, on the ground of there being an adverse claim to that part, the Company shall defer to that objection.

Prohibition of Monopoly.

17.—Nothing in this Our Charter shall be deemed to authorize the Company to set up or grant any general monopoly of trade ; and subject only to customs duties imposed for revenue purposes, and to restrictions or importation similar in character to those applicable in Our United Kingdom, trade with the Company's territories shall be free.

Deed of Settlement.

18.—Within one year after the date of this Our Charter there shall be executed by the members of the Company for the time being a Deed of Settlement providing for—

(i.) The amount and division of the capital of the Company and the calls to be made in respect thereof.

(ii.) The registration of members of the Company.

(iii.) The preparation and the circulation among the members of annual accounts.

(iv.) The audit of those accounts by independent auditors.

(v.) The making of Bye-laws.

(vi.) The making and using of official seals of the Company.

(vii.) The winding-up (in case of need) of the Company's affairs.

(viii.) Any other matters usual or proper to be provided for in respect of a Chartered Company.

19.—The Deed of Settlement shall before the execution thereof be submitted to and approved by the Lords of Our Council, and a certificate of their approval thereof signed by the Clerk of Our Council shall be indorsed on this Our Charter and on the Deed of Settlement.

20.—The provisions of the Deed of Settlement may be from time to time varied or added to by a Supplementary Deed made and executed in such manner and subject to such conditions as the Deed of Settlement prescribes.

10 cents, redeemable at any time before the expiration of the lease on payment of \$1 per acre in addition to the premium.

7. One third of the premium must be paid on the completion by the Governor of the agreement for the lease, and the remainder within 12 months from the date of the first application for the lease, or on the granting of the Permit, or of the Lease, whichever shall first take place.

8. A *bonâ fide* commencement to bring the land under cultivation must be made within 18 months from the date of the selection of the land, and the Lessee will be entitled to retain two acres of uncultivated land for every acre that shall have been brought under cultivation within a term of 12 years from the date of the agreement for a lease.

Should there still remain a balance of uncultivated land to make up the total acreage named in the original agreement, after the deduction of the cultivated and uncultivated land to which the Lessee is entitled at the end of the said 12 years, that balance of uncultivated land will revert and escheat to the Company.

9. All coal, minerals, precious stones, and mineral oils on under and within the said lands are absolutely reserved to the Company, or its Licensees, together with the right to enter upon the said lands, and to search for, get, and take away coal, minerals, precious stones, and mineral oils in, on, or under the same, and to reserve such portions of land as may be necessary for examining or working any mines, or conveying away the products thereof, upon payment of reasonable compensation to the Lessees for surface damage to such land.

10. Mining licenses will be granted on favourable terms to the Lessees of demised lands.

11. The Company reserves all navigable streams, rivers, and creeks, and a belt of land fifty yards wide along the banks of the same, and also a similar belt of land from high water mark along the sea-shore; ample provision, free of rent, being made for landing places and other purposes, for the convenience of the neighbouring estates.

The Company will also reserve such portions as may seem advisable along the ridges of hills.

12. The Company reserves the right to resume possession of such portions of land as may be necessary for public purposes, such as police, revenue and telegraph stations, roads, railways, tramways, canals, &c., upon payment of compensation for damages actually sustained by the Lessee.

13. The Company reserves the right at all times to take, or to authorize others to take, timber, stone, clay, sand, and other road-making material for the construction and repair of neighbouring roads, bridges, &c., on payment of reasonable compensation for actual damage done to the crops or roads of the Lessee.

14. The Company reserves all edible birds' nests and guano, and also the right at all times to enter on the demised land, and to take, or authorize others to take, such edible birds' nests and guano on payment of reasonable compensation for actual damage done to crops or roads of the Lessee.

The Lessee will be entitled to collect all gums, gutta-percha, india-rubber, and other natural produce (save edible birds' nests and guano), on and of the demised land, paying any such Royalties in respect of the export of such produce as may for the time being be reserved to the Company, in pursuance of any regulations made or to be made by the Company. Provided that if the Lessee at any time, and from time to time, has not exercised his right in respect of any description of such produce, the Company may serve on him a notice of its intention to collect such description of produce, and if within a period of six months from the service of such notice the Lessee has not exercised his right, the Company or its licensees, agents, or servants, may, at any time within three months from the expiration of such period of six months, enter on any forests or uncleared or uncultivated parts of the demised land, and collect therefrom the produce referred to in the notice for the use or benefit of the Company, on payment of reasonable compensation for actual damage done to the crops or roads of the Lessee, and so from time to time.

15. All expenses of survey, demarcation of boundaries, transfer or registration fees, or expenses of conveyance to

be borne by the Lessee. Landmarks will in the first instance be set up by the Company, but will be kept in repair at the expense of the Lessees.

16. Upon breach by the Lessee of the negotiations and conditions marked respectively 7 and 8 or of either of them, the land shall revert or escheat to the Company.

17. All arrears of payment due by the Lessee under the provisions of this notification shall be recoverable by summary process in any court of law in the territory of The British North Borneo Company.

18. In the case of Companies or persons wishing to take large tracts of land modifications of clauses 5, 6, and 7 may be made.

19. The regulations respecting the registration of titles to land, and the fees chargeable for registration, shall be the same as those enforced by Ordinance No. 7 of 1849, enacted by the Legislative Council of the British Colony of Labuan, which ordinance has been adopted as the law in this matter throughout the territory.

20. The only fee chargeable under the provisions of this Notification upon the issue of a lease is the sum of two dollars, which includes the fee for the registration of the same.

Table of Fees.

On Issue of lease or grant, including fee for registration thereof	...	...	...	...	\$ c.
Registration of mutation of title to land	...	...	...	...	2.00
Registration of mortgage or other charge	...	...	...	...	1.00
Inspection of Registers	...	...	...	...	0.25
For certified extract for same	...	...	...	...	1.00

Upset Prices and Premia.

Town building lots, upset price	...	...	...	...	\$ c.
Suburban lots	...	...	...	...	16.00
Country lands under 100 acres, per acre	...	...	...	...	9.00
Waste lands of 100 acres and upwards, free of quit rent, premium per acre	...	...	...	...	1.00
Do., with quit rent of 10 cents per acre, premium per acre	...	...	...	...	0.50

Quit Rents.

				\$	c.
Town building lots per annum	...	...	...	6.00	
Suburban lots per annum	...	...	...	6.00	
Country lots of less than 100 acres, not under special regulations, per acre	...	...	...	0.25	
Waste lands purchased at \$1.00 per acre	...	...	...	0.00	
"	"	\$0.50	"	...	0.10

NOTE.—*Quit Rents are redeemable by 10 years' purchase.*

Dimensions.

Town building lots	...	33' × 66 = 2,178 sq. feet
Suburban lots	...	132' × 65 = 21,780 "

SCALE OF SURVEY CHARGES.

Acres in extent.		Acres in extent.		Acres in extent.	
	\$ cts.		\$ cts.		\$ cts.
1	1 12	100	76 50	2,000	832 50
2	2 25	125	90 50	3,000	1,012 50
3	3 37	150	103 50	4,000	1,192 50
4	4 50	175	117 50	5,000	1,372 50
5	5 62	200	130 50	6,000	1,507 50
6	6 75	225	144 50	7,000	1,642 50
7	7 87	250	157 50	8,000	1,777 50
8	9 87	275	171 50	9,000	1,912 50
9	10 12	300	184 50	10,000	2,047 50
10	11 25	350	211 50		
11	12 60	400	238 50		
12	13 95	450	265 50		
13	15 30	500	292 50		
14	16 65	600	337 50		
15	18 65	700	382 50		
20	22 50	800	427 50		
25	27 50	900	472 50		
50	45 50	1,000	517 50		
75	63 50	1,500	697 50		

All areas above 10,000 acres to be at the rate of twenty cents per acre. Town and Suburban lots each \$2.

NO. 2 OF 1885.

*Proclamation by William Hood Treacher, Esquire,
Governor and Commander-in-Chief of the Territory of
British North Borneo.*

(Signed) *W. H. TREACHER,*
Governor.

Approved by the Court of Directors of the British North Borneo Company on the 13th day of May, 1885.

WHEREAS it is expedient to repeal that portion of the Proclamation of the 23rd day of December, 1881, by which the provisions of the Labuan Land Ordinance, numbered 2 of 1863, were adopted as Law in the Territory of British North Borneo, and to make other provision in lieu thereof.

1. It is hereby enacted and proclaimed that the aforesaid portion of the Proclamation of the 23rd day of December, 1881, by which the provisions of the Labuan Land Ordinance, numbered 2 of 1863, were adopted as Law in the Territory of British North Borneo, shall be and is hereby repealed from the date of the coming into operation of this Proclamation, save and except as touching rights which shall have accrued, liabilities which shall have been incurred, acts which shall have been done, and all proceedings on matters which shall have taken place before this Proclamation shall come into force.

2. All Government Lands under 100 acres in extent within the said territory shall be distinguished into Town Lots, Suburban Lots, and Country Lots, and be disposed of in leases for the term of 999 years, unless at the time of sale of any Lot or Lots, any shorter term of lease shall have been notified in the advertisements or conditions of sale with the approval of the Governor, or if any Lot or Lots shall be disposed of under Section 5 hereof, for such term as the Commissioner of Lands, with the sanction of the Governor, shall think fit.

3. Applications for lands shall be made to the Commissioner of Lands, or to the duly appointed officer at out-stations, but no sale or transfer shall be valid unless approved under the hand of the Governor.

4. Before proceeding to the disposal of any Lots within the Town or Suburban boundaries, the limits of the said Lots shall be accurately defined and published.

5. The said lands shall from time to time be disposed of by the Commissioner of Lands, with the sanction of the Governor, by public auction, and it shall be lawful for the Commissioner of Lands to dispose of any land which shall have been once so exposed for sale without being sold, to applicants by private contract within four months from the date of such auction on terms sanctioned by the Governor.

6. The Town Lots shall be subject to an annual quit-rent at the rate of one hundred and twenty dollars per acre, such quit rents being redeemable at 15 years' purchase.

7. Lands in the suburbs shall be disposed of in Lots of about one acre each, and in the country in Lots of less than 100 acres each. Such lands shall be subject to such annual quit-rent as shall be fixed by the Commissioner of Lands with the sanction of the Governor, from time to time, and publicly notified ; the said quit-rents being redeemable at 15 years' purchase.

8. It shall be lawful for the Commissioner of Lands to determine at the time of sale whether any or what credit shall be allowed to the Lessees of Lots, and to regulate the terms on which the whole or any portion of the purchase-money paid down shall be forfeited, but in no case shall less than one-tenth of the purchase-money be paid at the time of sale.

9. The payment of the quit-rent, reckoning from the date of sale, shall in every case be made in advance to the end of the current year upon the execution of the lease or of the permit to occupy, and the succeeding payments shall be made on the 1st day of January in advance for each succeeding year, and any lands for which the quit-rents may be more than one year in arrear and unpaid shall revert and escheat to the Government, and all premia or other monies paid on account of such lands shall be forfeited.

10. Country Lots which remain unoccupied and unimproved for three years from the date of the lease shall revert

and escheat to the Government, and all premia, quit-rents or other monies paid on account of all or any such Lots shall be forfeited.

11. In the case of Town Lots and Suburban Lots which shall remain unoccupied and unimproved for one year from the date of the lease, the Government shall have the option of re-entering upon and reselling the same at public auction, paying to the original Lessee the whole or such portion of the premium obtained on resale as the Commissioner of Lands, with the sanction of the Government, shall think fit, not exceeding the amount of the premium originally paid to the Government for such land, any excess being retained by the Government, but all premia quit-rents or other monies paid on account of all or any such Lots shall be forfeited. In the case of Town Lots, it is hereby enacted that any buildings erected thereon must be built in conformity with the Local Building Laws for the time being in force.

12. All Lots shall be surveyed and boundary stones or other landmarks be set up by the Government at the expense of the Lessees ; and all boundary stones or landmarks shall be kept in repair by and at the expense of the Lessees, who, when called upon by the Commissioner of Lands, shall point out their boundaries. And no lease shall be executed or issued by the Commissioner of Lands until the whole of the premium, the quit-rent in advance for the year, and all expenses of survey, and the cost of such boundary stones or landmarks, and of setting up the same, and all fees for registration or transfer, and all expenses of conveyancing shall have been paid by the Lessees.

13. Should the Lessees, when duly called upon, fail at any time to point out or define their boundaries, or should their definition be incorrect, it shall be lawful for the Commissioner of Lands, after one month's notice of his intention so to do has been served upon the Lessees, their Agents or Managers, or has been published in the *Gazette*, to survey and define the said boundaries, and to charge the Lessees with the cost of so doing not exceeding one dollar per linear chain of boundary, and to recover the same in the manner provided in section 22 of this Proclamation.

14. Should it happen in case of Country Lots that immediate measurement of any land to be disposed of under the provisions of this Proclamation be found impracticable, it shall be lawful for the Governor to issue a Permit or a written authority to clear and occupy such land subject to the conditions on which a regular grant would have been issued ; which Permit shall specify the extent and describe as nearly as may be the relative positions of the land to which it relates ; and after the measurement of the land so occupied, the Permit shall be called in and cancelled, and a regular grant issued in lieu thereof.

15. It shall be lawful for the Commissioner of Lands, upon the application of the Lessee or other duly authorized person, to accept a surrender of any original grant of land and to grant new leases for sub-divisions of the same, provided that all arrears of rent due under the original grant have been previously paid, and provided that in no case shall the quit-rent for any portion of a Lot so sub-divided be less than one dollar per annum.

16. All coal, minerals, precious stones and mineral oil on, under and within the said lands are absolutely reserved to the Government or its Licensees, together with the right to enter upon the said lands and to search for, get and take away coal, minerals, precious stones and mineral oils in, on, or under the same, and to reserve such portions of land as may be necessary for examining or working any mines, or conveying away the products thereof, upon payment of reasonable compensation to the Lessees for surface damage to such land or any buildings thereon.

17. It shall be lawful for the Governor to grant mining licenses on favourable terms to the Lessees of demised lands.

18. The Government reserves the right to resume possession of such portions of land as may be necessary for public purposes, such as police, revenue and telegraph stations, roads, railways, tramways, canals, &c., upon payment of reasonable compensation for loss and damages actually sustained by the Lessee.

19. The Government reserves the right at all times to take, or to authorize others to take, timber, stone, clay, sand and other road-making material for the construction

and repair of neighbouring roads, bridges, &c., on payment of reasonable compensation for actual damage sustained by the Lessee.

20. The Government reserves all navigable streams, rivers and creeks, and a belt of land fifty yards wide along the banks of the same, and also a similar belt of land from high water mark along the sea-shore ; ample provision, free of rent, being made for landing places and other purposes for the convenience of the neighbouring Lessees.

21. The Government reserves all edible birds' nests and guano, and also the right at all times to enter on the demised land and to take, or authorize others to take such edible birds' nests and guano on payment of reasonable compensation for actual damage done to crops or roads of the Lessee.

The Lessee of any demised land shall be entitled to collect thereon all gums, gutta-percha, India-rubber, and other natural produce (save edible birds' nests and guano) paying any such royalties in respect of the Export of such produce as may for the time being be reserved to the Government in pursuance of any regulations made or to be made by the Government. Provided that if at any time the Lessee shall not exercise his right of collecting any kind of such produce, the Government may from time to time serve on him a notice of its intention to collect such kind of produce, and if within a period of six months from the service of such notice the Lessee does not exercise his right, the Government or its Licensees, agents or servants may at any time within three months from the expiration of such period of six months, enter on any part or parts of the demised land, and collect therefrom the produce referred to in the notice, for the use or benefit of the Government, on payment of reasonable compensation for actual damage sustained by the Lessee.

22. All arrears of payment due by any Lessee under the provisions of this Proclamation shall be recoverable by summary process in any Court of Law in the Territory of British North Borneo.

23. The Regulations respecting the registration of Titles to Land shall be such as shall be provided by the Law or Proclamation in force for the time being, but every Lessee

shall deliver to the Commissioner of lands a copy of every assignment or under lease of his demised lands or any part thereof, and shall produce or cause to be produced to the Commissioner of Lands the original thereof, for the purpose of registration, and until such registration no such assignment or under-lease shall be valid.

24. The fee chargeable for registration under the provisions of this Proclamation upon the issue of a lease or a permit to occupy is the sum of two dollars, and such registration shall be compulsory.

The expenses of survey and the cost of boundary stones or other land marks, and the expenses of setting up such boundary stones or other land marks shall be such as shall be notified from time to time by the Commissioner of Lands, with the sanction of the Governor, by public notification.

25. Nothing in this Proclamation provided shall be taken to affect the special conditions under which Lots of one hundred acres and upwards in extent are leased in accordance with the Special Regulations approved by the Court of Directors of the British North Borneo Company, on the 7th day of February, 1883, or such other Special Regulations as may hereafter be in the same manner approved by the said Court of Directors.

26. All dealings in land between European and Chinese and other foreigners on the one hand, and the natives of the country on the other hand are hereby expressly forbidden, and no such dealings shall be valid or shall be recognised in any Court of Law unless such dealings shall have been entered into and concluded before the 16th day of January, 1883.

27. A foreigner desirous of purchasing land from a native shall address his application to the Governor through the Commissioner of Lands, and the Governor, if he sees fit to sanction such purchase, shall, if the native owner consent, acquire the land on behalf of the Government, and shall fix the premium at which the same shall be leased by the Government to the applicant, and the land when so leased shall thenceforward be deemed to be alienated under the provisions of this Proclamation, and shall be subject to all the provisions thereof.

28. This Proclamation may be cited as "The Land Proclamation, 1885.

29. In the interpretation of this Proclamation the word "Governor" shall mean and include the Officer administering the Government of the Territory for the time being, and the words "Commissioner of Lands" shall mean and include the Officer in charge of the land office for the time being, or his duly appointed deputies, and in Section 10 the term "unoccupied and unimproved" shall, so far as regards Town Lots, mean Lots on which tenantable houses have not been erected and maintained.

The following notices in reference to the Exhibits in the British North Borneo Court at the Colonial and Indian Exhibition may be of interest.

From the Pharmaceutical Journal, July 17, 1886.

The collection of articles contributed by British North Borneo are to a certain extent similar to those from the Straits Settlements. The chief products of the colony consist of valuable timbers, gutta-percha, india-rubber, Borneo camphor, edible birds' nests, sago, pepper, gambier and tobacco.

One of the timbers, named "billian," is remarkable, besides its durability and great strength, for being proof against the teredo or sea worm, a property that suggests the desirability of a chemical examination of the wood with a view to determine the nature of the constituent which proves obnoxious to these animals. It is perhaps still more valuable on account of being proof against the ravages of the white ant. Another timber called "kungas" is also not attacked by these insects. A third, known as "lakar" wood, is a dark-red marbled and extremely hard wood, which gives off a fragrant odour when burned, and when scraped or rasped is used as an ingredient in incense ; it is also employed as an astringent in medicine and for tanning fish nets. According to Professor van Eeden this wood is the produce of *Dalbergia Zollingeriana*, Miq. It is valued in Borneo at 6s. per picul, and in Singapore at 4s. per picul. The bark of the "russack" tree (*Vatica Russack*), which is added to toddy to make it intoxicating, is one of the few barks exhibited. It is remarkable that a species of the same genus is used in Ceylon for a similar purpose. Under the name of "chindana," probably a corruption of the Hindoo "chandana," a handsome yellowish fragrant wood is shown, which might perhaps afford a volatile oil. It does not appear to have been botanically identified. A considerable quantity of mangrove bark forms a conspicuous object of the exhibit and perhaps deserves the prominence

given to it ; for, according to an analysis of the bark made by Mr. W. W. Evans, of Bristol, since the Exhibition has been open, it affords 41·398 per cent. of tannin.

Some very fine specimens of "dammar mata kuching" and of copal are shown, and several kinds of gutta-percha and india-rubber, including "gutta merah," "gutta hilang," or "elong," "gutta menoun," and "gutta lichak" (india-rubber).

Bornean gutta-percha and india-rubber, like those of Perak, are mixed articles. Thus, Mr. Burbidge states :—*

"That from the Larvas district is formed of the mixed sap of at least five species, the juice of *Ficus* and one or two species of *Artocarpus* being not unfrequently used in addition as adulterants. The Bornean "gutta soosoo" or rubber, again, is the mixed sap of three species of *Willoughbeia*, and here also the milk of two or three other plants is added surreptitiously to augment the "quality collected."

Mr. Burbidge further remarks that although the demand for caoutchouc from Borneo is a recent one, yet in many districts the supply is practically exhausted. He advises that the *Willoughbeia*, which grows quickly and may be easily and rapidly increased by vegetative as well as seminal modes of propagation, should receive the attention of the Government in India, where the plant might be expected to thrive.

Very little appears to be known concerning the trees which afford the gutta and caoutchouc of North Borneo, and in the 'Kew Report' for 1886 the Director expresses a hope that the North Borneo Company will employ a competent botanist to investigate the subject and to collect good specimens in flower and fruit of every tree yielding a product of commercial value, as it is to the interest of the Company to ascertain definitely the extent of the gutta-percha and india-rubber resources of the island, and how existing supplies may be best developed and husbanded,† since the same wasteful method of collecting gutta-percha that obtains in Perak seems to be followed also in Borneo.

In connection with these remarks it may be well to call

* 'The Gardens of the Sun,' pp. 75, 76.

† Kew Report, 1881, p. 44.

attention to a very valuable paper by Mr. Leonard Wray on the great loss of gutta-percha resulting from the wasteful mode of extraction at present employed.* In some experiments made on the bark of a tree of "getah taban simpor" (*Payena Maingayi*), from which gutta had been extracted, he found that the wet bark which is now allowed to rot in the jungle contains fully 5·7 per cent. of gutta-percha, or 11·4 per cent. when dry, and that, by simple pounding or rasping and boiling the bark, nearly all this gutta can be extracted. He calculates that, accepting the estimate of the export of gutta from the Straits Settlements and Peninsula as 10,000,000 lbs. weight in 1875, the amount of gutta-percha lost to commerce, in the bark of felled trees, must have amounted in that year to no less than 300,000,000 lbs., putting the price at 2s. 6d. per lb. to not less than £37,500,000. In other words, for every pound of gutta-percha collected, 30 lbs. are wasted. The gutta trees are of such slow growth that the tree planted in one generation cannot be expected to yield good gutta until the next, and, according to Mr. Wray, one-thirtieth of the number of trees that are at present felled could be saved.†

The minjak (*i.e.*, oil of) tangkawang, a solid fat with a low melting point, and which does not readily become rancid, is shown *in situ* in the bamboos in which it is moulded. There are two kinds of these fats, one of which is nearly white and used for culinary purposes, such as frying fish, making cakes, &c., and the other is of a greenish tint and is used for lubricating machinery and for purposes of illumination. The former is said to be derived from large seeds, probably those of *Hopea macrophylla*, and is known as tangkawang lingis. The green fat is prepared from smaller seeds, probably those of another species of *Hopea* and is distinguished as tangkawang mahjor or minjak kerapoh. A fuller account of these fats was given in a former number of this Journal.‡

* *Journal of the Straits Branch of the Royal Asiatic Society*, 1884, p. 219.

† An attempt was made to carry out a project of this kind, some twenty years ago, in British Guiana. A very large outlay was made for the purpose, but the result was total failure, the extract obtained consisting chiefly of astringent material with very little gum.

‡ See *Pharm. Journ.*, [3] xiv., pp. 401, 481.

Two products, which also occur in the Straits Settlements collection, viz., Borneo camphor and edible swallows' nests, can be more appropriately noticed here, since they are represented more fully in the North Borneo Court. Of the birds' nests three varieties are shown. The first and best are quite white, and are said to be those which have been collected after they have been finished by the birds, but before the eggs are laid; the second quality appears to consist of the nests which have been used, but in which young birds have not been raised; and the third contains adhering feathers. The two former are known as white and the last as black birds' nests. These appear to be made by different birds, for, as pointed out by Mr. Lowder, the feathers do not merely adhere but are imbedded in the salivary layers of which the nests are formed; portions of dried seaweed or lichens are also incorporated. The birds inhabit caverns near the sea, or sometimes inland, as in Upper Perak, and the limestone caverns of Mount Gomanton, in Borneo, and the sandstone ones at Sandakan head.* They are collected, at great risk to life and limb, twice a year, in various parts of the Eastern Archipelago. There appears to be some doubt as to the exact species which build these nests, *Collocalia Linchi*, Horsf., being given in the Straits Settlements Catalogue as the species. Mason, however, states that this bird makes a brown nest of moss glued together, while *Collocalia esculenta* makes its nest of repeated layers of glutinous salivary matter alone. The latter bird is called the "lawet" in Java, while the name "Linchi" is applied to the smaller species named *Collocalia Linchi*. Possibly the white nests are the product of *C. esculenta* and the black ones of *C. Linchi*. Two other species, however, appear to produce edible nests, and these are known respectively as *C. spodypygia*, Peale,† and *C. fuciphaga*, Horsf,‡ which occur in the Andaman Islands, the latter also in Tenasserim.

The nests are often brown or discoloured at the parts where they are attached to the rocks, and have to be cleaned for the Penang market. The white nests are used

* Burbidge, 'Gardens of the Sun,' p. 237.

† Mason, 'Burmah,' i., p. 358.

‡ Linn. Trans., xiii., p. 142.

by the wealthy Chinese as an ingredient in soups, 120 grams being used for the litre of soup. The dirty nests are said to be employed to make a particular kind of glue. The first quality is valued at 2500 dollars per picul, the second at 1500 dollars, and the third at 1000 dollars. It is calculated that as much as 242,400 lbs. of these nests are annually exported to China from the Indian Archipelago. In some parts of China as much as £9 has been paid for a catty (about $1\frac{1}{4}$ lb.) of these nests. At one time it was supposed that the substance of which they are composed was seaweed collected by the birds, and some discussion has taken place in *Nature* on this subject.* It appears now to be definitely settled that it consists of a salivary secretion similar to that used by the swallows in this country in binding together the clay of which their nests are made. Like another article highly prized by the Chinese, it appears to be considered a tonic and invigorating remedy, and is also used as a restorative by opium smokers; it is prescribed in consumption, and for convalescents after protracted illness. A detailed and interesting account of the commerce in these nests may be found in Simmond's 'Animal Food Resources,' p. 141.

Borneo camphor does not appear to have received the attention it deserves in this country. So astute a people as the Chinese have doubtless some good reason for their preference of this camphor to that which can be procured at one-twelfth of the price in Formosa and Japan. It does not appear to have been noticed that although the odour of the Borneo camphor is not altogether agreeable, the taste is by no means so disagreeable as that of Formosa camphor. Its physiological properties also cannot be said to have been fairly tested. For this purpose well defined crystals only should be used, since it is probable that the smaller crystals are frequently adulterated with crude Formosa camphor, because the large crystals do not appear to be volatile, while the smaller ones frequently furnish a crystalline sublimate at ordinary temperatures.

The high price of the drug is in part due to the fact that a large number of trees have to be examined before the

* *Nature*, May 27, p. 86, to June 3, p. 101.

collector can find one containing the camphor in a crystalline state. Many of the trees yield oil, but very few contain camphor. The presence of the latter is ascertained by making a hole in the tree with a native axe at about 14 or 18 feet from the ground, till near the heart, where a deeper incision with a smaller aperture is made; if the oil is present it gushes out and is received in bamboos or other vessels. Some hundreds of trees may be thus examined before camphor is seen. When a tree containing camphor is found it is felled and cut into pieces about 6 feet long, or less, and these are split open, when the camphor is found in the heart wood occupying a space about the size of a man's fore-arm. The produce of a medium sized tree, *i.e.*, about $2\frac{1}{2}$ feet in diameter, is about 11 pounds, and of a very large one, say 6 feet in diameter, about double that quantity. Camphor found in this way is distinguished as "se aaniong," and that met with in holes of trees that have been previously cut is known as "oogar," the scrapings of the wood being known as "belly and foot."* Trees less than two feet in diameter rarely produce camphor, oil being found in the younger trees, but sometimes a pitchy or resinous looking substance is found in the cavities in the trunk.

Probably on account of the uncertainty of finding camphor in the trees the natives and the Malays have very superstitious ideas regarding its collection. While searching for it they abstain from certain kinds of food, eat a little earth, and use an artificial language called the *bássá kápor*, *i.e.*, camphor language. It is believed that if this language be not used great difficulty will be experienced in finding the trees, and when found the camphor will not yield itself.† There are some men who pretend to a special intuition as to the trees which will yield camphor. These are styled Toongoo Nyr Capor. Fuller details concerning the commercial qualities of this camphor may be found in a former number of this Journal.‡

Some fine specimens of the camphor wood are shown in this Court. The tree is a very large one, and the wood is extensively employed for making boxes, furniture, &c. It

* 'Asiatic Researches,' vol. xii. p. 539.

† *Journ. E. I. Archipelago*, 1847, p. 268.

‡ *Pharm. Journ.*, [3] vol. xv., pp. 795, 796, 894.

is said to be abundant in the island called Pulo Bai, in Sandakan Bay, and in Padas district.

Another exhibit worthy of a brief notice is a kind of guano or manure, consisting of the excrements of swallows and bats. This is found forming a deep layer in caves, especially in East Borneo in the neighbourhood of Goman-ton ; it forms an important but, as yet, almost untouched store of this valuable material.

From the Times, Sept. 6th, 1886.

North Borneo is a British colony unattached, in this respect occupying a position the converse of that of Cyprus, but similar to that of the Niger districts. It is a part of the British Empire by virtue of the charter granted to the company which owns it and governs it, and is on a similar footing to that of many of our colonies when first we began to expand beyond the seas, and, indeed, to India in the early days of "John Company." But we have long ceased to make colonies after this fashion, and it might be well to put an end to the anomalous position of North Borneo by according to it the dignity, rights, and privileges of the other members of our great colonial family. As it is, though only a company's property, it has all the paraphernalia of a Crown colony. It has its Governor, styled "Excellency" by his subordinates, its colonial secretary and treasurer, its residents and sub-residents, and all the other officials, whose designations form so prominent a feature in the Colonial Office List. Its interesting and well-stocked little court forms a continuation of that of the Straits Settlements. From a commercial point of view timber is the most prominent and most important exhibit. Like many of the other colonies in the Exhibition, North Borneo regards itself as the great timber-yard of the world. Timber it certainly has in abundance ; it is one vast forest, and of its timber there are several kinds of great economical value. One of the principal woods shown in the court is known as billian, a timber that sinks in water, is very hard and durable, and is already being exported in considerable quantities to Australia. Other timbers are exported to China and the Straits Settlements, as well as Australia.

North Borneo has a considerable number of other woods which are said to be of great utility where strength and durability are required, such as russak, tapang, paluwan, greeting camphor, sereah or Borneo cedar (used in Australia), &c. There are also several good furniture woods to be seen in the Exhibition, of fine grain and capable of beautiful polish, resembling mahogany and walnut. The Borneo forests are still practically virgin, and no doubt the Company will take warning from other colonies that now lament the reckless destruction of their forests. Timber does not as yet figure largely among the exports of the embryo colony, but with its many converging streams, giving facilities for floating down logs, and its really fine harbours, much might be made of it in supplying some of the comparatively timberless countries of the Far East. So far as Europe is concerned, there is so much timber of every description within easy reach that we doubt if Borneo can ever expect to do a large business in that direction. Another natural product found in considerable quantities, and figuring largely among exports, is a kind of native gutta-percha of several kinds, specimens of which may be seen in the court. There are also specimens of india-rubber in the court, and it also is stated to be found in abundance. We have also that rare Chinese luxury, edible birds' nests, which are found in enormous quantities and of various qualities, some of the finer kinds fetching very large prices. A considerable export trade is done in this product. Rattans, of course, grow in profusion, and they form one of the most important items of export. Tortoise-shell, bees-wax, vegetable tallow, gums, and bêche-de-mer are other products to be seen in the court that can be turned to considerable commercial account. Of minerals, coal and gold are shown; and these and other minerals—tin, antimony, iron, copper, and cinnibar, are said to exist in abundance. This is probably true with reference to coal, as the testimony of explorers proves, and, if so, the company will certainly be fortunate. But the interest and duty of the Company at present are to demonstrate in a manner satisfactory to practical men and possible settlers that these and other resources do exist in the abundance conjectured. No mere vague statements will produce much effect.

As to cultivated products, there seems little doubt that the soil of North Borneo is well adapted for nearly all tropical cultures. Tobacco, sago, pepper, gambier, Manila hemp, and sugar are shown in this court ; while the natives largely cultivate rice. A German company has entered on the cultivation of tobacco, and a report we have seen speaks well of the results. It compares the Borneo tobacco to that of Sumatra, and we believe Sumatra tobacco has actually been introduced. No doubt the tobacco is good enough, and its culture deserves encouragement ; but it seems to us premature to bring it forward as something exceptionally superior. The Company certainly offer liberal terms to planters and settlers, and even advance money to those in want of capital, under certain conditions. We believe a Chinese company are at work with capital partly advanced by the Company. It is doubtful whether the natives themselves will ever be of much service in developing the colony, and it would certainly be a good thing for the Company if they could induce Chinese to immigrate in large numbers.

The court abounds in "curios" and in articles of native manufacture and ethnological interest. The clothes and apparel used by the Dusuns, the principal tribe of the colony, are abundantly represented, as well as implements and weapons and ornaments. There are a Dusun winnowing machine, plough, rice decorticator, harrow, reaping knife, distaff ; a bamboo lyre, knives, war apparel, shields, a curious coat of mail, swords, kris, a popgun used in producing fire, and other such articles, interesting to compare with similar exhibits in other courts in which semi-barbarous features are prominent. The Malay execution kris is an ugly looking weapon ; while we are glad to see the last pirate flag, taken in Darvel Bay in April, 1885, and a model of a pirate boat.

The Company have certainly acquired one of the choicest bits of a fine island, including an area of 31,000 square miles, with a coast-line of 600 miles, containing several magnificent harbours. One of the best of these is Sandakan Bay, in which stands the chief settlement, Sandakan. On this area the estimated population is only 150,000—Mahomedan Malays with an infusion of Chinese and Arab blood on the coast, and various aboriginal tribes,

mainly Dusuns in the interior. The country is well watered, some of the rivers being navigable for small craft for a considerable distance. There are picturesque mountain ranges averaging 6,000 ft., rising in Kina Balu to 13,700 ft., a picture of which forms one of the decorations of the court. Elephants, rhinoceroses, buffaloes, and other large game are found, and will doubtless afford fair sport for some time to come. The territory was ceded to Mr. Dent and others in 1877-8 by the Sultans of Brunei and Sulu, and the Company was formed and chartered in 1882. The Company we understand act only as administrators, preferring to rent the land to settlers able to develop it. The ports are free, but a royalty of 10 per cent. is charged on the export of jungle produce; the bulk of the revenue, however, is derived from farming the right to sell opium, tobacco, and spirits. During the short time the Company have been in possession of the territory the progress has been marked. The revenue has increased from \$20,207 in 1881 to \$106,190 in 1885, and estimated at \$127,886 for 1886. The expenditure has not increased in anything like the same proportion; in 1881 it was \$108,294; in 1885, \$202,075. The exports, again, have advanced from \$145,443 in 1881 to \$387,757 in 1885. To illustrate the hopeful prospects of this infant colony, the rapid progress of the commerce of Hong Kong and the Straits Settlements is adduced. But it seems to be forgotten that this progress is almost entirely due to the importance of these two colonies as emporia for the trade of the Far East, and not to any great extent to the development of native resources of which Hong Kong has none. We doubt if there is room for a third *entrepôt* so near to Singapore as North Borneo is. Let the Company by all means endeavour to attract trade to its harbours, but it seems to us that the prosperity of the colony must depend mainly on the development of its natural resources, and the culture of the tropical products for which its soil and climate are so well adapted. As to the climate, it seems fairly well fitted for European residence, under the precautions which should be taken in every tropical country.

It is to be expected that the colony will soon become an Imperial possession. And, if so, it might be advisable to

consider whether an arrangement could not be made by which, for administrative purposes, it might be combined with Sarawak and Brunei ; for we believe it would not be difficult to persuade the Sultan of the latter to part with his rights for a moderate consideration, while Rajah Brooke, of Sarawak, might not object to be placed under Imperial protection. The North Borneo Company certainly deserve credit for the very effective steps they have taken to explore their territory and take stock of its resources ; and if they could only succeed in attracting capital and labour probably much could be made of it. They have had several zealous and competent officials, who have done good work for science as well as for the Company. Among the names that ought to be mentioned in connexion with this court are those of the Executive Commissioner, Sir Rutherford Alcock, chairman of the Company ; Mr. Alfred Dent and Mr. William Kidner, Commissioners ; and Mr. W. M. Crocker, Assistant Commissioner.

APPENDIX.



THE Appendix contains the following tables :—

Nos. I., II., and III. are tables showing respectively the Monthly Rainfall, the Monthly Means of the Maximum daily temperature in the shade, and the Monthly Means of the minimum daily temperature in the shade for Sandakan, from January, 1879, to the end of March, 1886, and for Silam, Kudat and Papar for shorter periods during that time. No. IV. is a table showing the comparative Revenue, Expenditure and Trade for the years 1881 to 1885; and No. V. is a detailed statement of Imports and Exports for 1885.

I.—TABLE OF MONTHLY RAINFALL.

Station.	Year.	January.	February.	March.	April.	May.	June.	July.	August.	Sept.	October.	November.	December.
Sandakan . .	1879	14·92	21·95	21·35	7·74	4·36	2·65	...	4·92	2·08	10·88	8·18	12·29
Do.	1880	20·73	5·07	10·39	8·71	6·72	5·73	6·37	17·88	11·60	8·77	26·40	26·59
Do.	1881	14·21	9·09	1·54	4·47	10·09	11·23	6·66	4·91	19·18	3·78	24·05	10·
Do.	1882	31·28	7·50	8·89	9·31	2·82	15·50	7·05	4·90	5·20	8·40	19·30	13·80
Do.	1883	18·70	16·70	9·06	3·82	9·36	4·65	10·03	3·80	8·49	12·76	13·76	23·57
Do.	1884	16·68	5·06	3·60	·77	9·08	7·87	7·68	6·60	6·92	9·83	16·58	15·52
Do.	1885	5·72	1·99	·84	·51	3·13	17·11	5·29	8·84	8·43	16·73	12·28	20·37
Do.	1886	30·72	4·96	3·59	...	...	...	...	...	...	...	...	...
Papar . . .	"	...	...	...	3·92	8·89	17·53	...	...	...	...	...	...
Silam. . . .	"	...	...	...	...	...	5·13	10·49	9·74	13·01	14·06	8·98	16·34
Kudat . . .	1883	16·82	7·57	5·83	3·31	4·36	3·33	8·47	4·67	4·22	8·94	22·56	30·46
Do.	"	6·72	0·92	2·94	1·17	3·38	8·61	...	...	...	...	...	...
Average . . .		17·85	8·081	6·801	4·375	6·219	9·030	7·755	7·362	8·792	10·461	16·896	18·771

II.—TABLE OF MEAN MAXIMUM TEMPERATURE.

Stati n.	Year.	January.	February.	March.	April.	May.	June.	July.	August.	Sept.	October.	November.	December.
Sandakan . .	1879	82.00	80.88	84.25	85.60	86.58	86.10	86.30	85.60	88.30	86.70	87.37	84.70
Do.	1880	83.25	86.67	87.10	88.14	90.49	88.48	89.85	90.80	89.70	90.125	85.72	83.65
Do.	1881	82.26	83.71	84.94	85.61	88.15	87.28	88.33	88.51	...	...	...	...
Do.	1882	89.28	86.98	87.87	89.96	91.59	89.82	89.32	91.01	90.65	90.36	88.00	88.40
Do.	1883	87.41	87.16	89.30	90.48	89.61	89.20	90.95	89.92	90.31	89.50	88.11	85.77
Do.	1884	85.17	85.82	87.82	88.65	88.29	87.76	87.58	89.08	88.04	88.27	87.50	86.43
Do.	1885	89.45	87.74	89.87	92.65	93.00	90.93	90.27	89.00	88.70	88.35	87.56	86.08
Do.	1886	84.29	84.46	86.854	...	...	...	...	...	...	...	...	...
Papar . . .	"	...	...	...	84.00	84.00	85.00	...	...	...	...	...	...
Kudat . . .	1883	83.70	85.10	87.30	88.30	88.60	88.50	88.60	89.30	88.40	87.60	83.60	81.50
Do.	"	81.03	84.62	81.85	88.40	90.—	89.66	...	...	...	...	...	...
Average . . .	...	84.784	85.314	86.715	88.079	89.03	88.273	88.90	89.152	89.157	88.70	86.837	85.132

III.—TABLE OF MEAN MINIMUM TEMPERATURE.

Station.	Year.	January.	February.	March.	April.	May.	June.	July.	August.	Sept.	October.	November.	December.
Sandakan . .	1879	...	...	...	...	...	73°20	74°40	73°14	75°00	74°50	75°26	74°04
Do.	1880	73°07	74°70	74°10	74°16	74°84	73°36	73°45	74°04	73°50	73°71	73°60	71°66
Do.	1881	73°64	72°66	74°07	74°63	74°37	73°62	73°64	71°70	...	...	...	...
Do.	1882	73°65	73°80	73°87	74°89	74°82	73°60	73°26	72°77	74°70	74°10	73°90	73°60
Do.	1883	73°22	73°94	74°74	75°08	74°90	74°70	74°64	73°79	73°86	72°80	73°80	71°46
Do.	1884	72°08	72°34	73°03	73°88	73°35	72°26	72°41	72°25	72°08	72°72	73°00	72°22
Do.	1885	72°77	73°32	73°26	74°75	74°67	72°50	71°90	73°30	72°85	72°43	72°55	72°56
Do.	1886	71°56	72°16	72°12	...	...	...	...	...	...	...	...	...
Papar . . .	, ,	...	...	...	73°00	74°00	73°00	...	...	...	...	...	...
Kudat . . .	1883	75°70	75°50	77°20	78°00	76°40	75°90	75°40	75°50	75°20	75°20	75°10	73°70
Do.	1884	74°24	74°58	75°56	75°80	76°06	74°10	...	...	...	...	...	...
Average . . .		73°336	73°60	74°216	74°91	74°823	73°624	73°23	73°311	73°884	73°637	73°887	72°748

IV.—TABLE OF COMPARATIVE REVENUE, EXPENDITURE AND TRADE.

The following extracts are from Governor Treacher's last report.

Year.	Revenue Proper.	Expenditure Proper.	Imports.	Exports.
	\$	\$	\$	\$
1881	20,208	108,295	160,658	145,444
1882	38,935	189,223	269,597	133,655
1883	50,738	267,531	428,919	159,127
1884	82,449	196,240	481,414	262,759
1885	110,256	208,072	*645,599	*401,641
1886	128,000†	180,000†		

* The west coast imports and exports for 1885 have been estimated and added to those for Sandakan.

† Estimated for 1886.

V.—TRADE RETURNS FOR 1885.

IMPORTS.

Articles.	Amount.	
	\$.	c.
Arms	343	10
Brass Ware	19,417	54
Bricks	930	00
Building materials	2,606	10
Cloth	142,160	62
Coal	1,289	00
Copper coins	10,241	00
Damar	5,851	40
Dried fish	422	60
Earthenware	9,821	26
Fruits, &c.	3,430	57
Furniture	5,531	00
Gunpowder	166	00
Iron ware	8,714	91
Kerosine oil	4,643	90
Live stock	4,329	00
Machinery	325	00
Matches... ..	1,369	99
Oils	7,035	05½
Opium	19,289	00
Paddy	712	55
Provisions	45,553	67
Rattans	32,773	29
Rice	78,039	42
Salt	3,456	52
Spirits	14,478	60
Stationery	1,983	18
Sugar	8,109	20½
Sundries	94,972	27
Tiles	1,550	00
Timber	94	00
Tobacco	12,628	07
Treasure	105,766	90
Wax, &c.	281	80
Total	648,316	52

EXPORTS.

Articles.	Amount.	
	\$.	c.
Bees'-wax	8,957	61
Birds'-nests	27,952	88
Camphor	8,711	27
Coal	717	36
Copper coins	8,445	00
Damar	11,365	54
Elephant's tusks	219	00
Fish, dried	1,270	67
Fruits	73	90
Gutta percha	34,747	85
Hides	30	95
India rubber	8,535	34
Live stock	1,662	00
Opium	1,965	00
Rattans	67,100	86
Rice and paddy	7,933	46
Sago	53,417	16
Seed pearls	3,451	15
Sharks'-fins	1,987	44
Shells, mixed	7,602	99
Sundries	68,608	43
Timber	26,908	93
Tobacco	1,618	90
Tortoise shells	9,534	30
Treasure	27,762	64
Trepang	11,060	34
Total	401,640	97

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